Understanding Young Children's Perceptions of their Experiences with New Technology in The Nursery Setting: An Exploratory Ethnographic Study.

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A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Early Years Education.

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Publications

S. Johnston-Wilder, S. Pardoe, H. Almehrz, B. Evans, J. Marsh, and S. Richards (2016) DEVELOPING TEACHING FOR MATHEMATICAL RESILIENCE IN FURTHER EDUCATION, *ICERI2016 Proceedings*, pp. 3019-3028.

Author’s Declaration

This thesis is submitted to the University of Warwick in support of my application for the degree of Doctor of Philosophy. It has been composed by myself, and has not been submitted in any previous application for any degree.

The work presented (including data generated and data analysis) was carried out by the author.

Abstract

New technology is increasingly part of children's lives. While a growing body of literature has explored various aspects of nursery-aged children's exposure to ICT, children are seldom asked about their experiences. With this in mind, this study sought to explore children's perceptions of their experiences of ICT. This exploration was underpinned by current trends in the new sociology of childhood studies and the principles of United Nations Conventions on the Rights of the Child, both of which aim at giving a greater status to children's voice.

The thesis reports on a series of ethnographic case studies of three privately run nurseries in the West Midlands, England. It involved fieldwork observations, field notes, and discussions with 65 children aged three and four years old. In carrying out conversations with children, the study made use of some participatory techniques (e.g., photography and drawing). Adopting a friendly adult role, I participated with the children in their daily activities collecting information about their ideas and thoughts with regards to their experiences with new technology. Related ethical issues were discussed, and negotiated in the field. Using their own words, the study captured children's own perspectives on their encounters with whatever technologies were available in the nurseries. The findings showed that the children tended to perceive their ICT-based activities as play under certain circumstances. Significantly, they were more likely to view these activities as play when they owned their play, felt it was fair, had fun, and felt it accorded with their gendered identities. Conversely, when the children did not have influence on the activity, they often perceived it as boring and unfair. In addition, there was a tension between a preference to conduct their play with a friend(s) and a desire for personal ownership of the experiences. Recommendations for pedagogical practice, policy and future research are suggested.

List of Programmes, Games, DVDs and CDs that Children Accessed

Programmes and Games

Pirates, available at <https://www.youtube.com/watch?v=oPq0bsm3FUA>

We are going to the Zoo song, available at <https://www.youtube.com/watch?v=DySlI7FMZkY>

Ugly Duckling, available at <http://www.bbc.co.uk/cbeebies/radio/the-ugly-duckling>

Justin's House, available at <http://www.bbc.co.uk/cbeebies/shows/justins-house>

Squiggling letters, available at <http://www.bbc.co.uk/cbeebies/games/get-squiggling-letters>

Swashbuckle, available at <http://www.bbc.co.uk/cbeebies/shows/swashbuckle-online>

Peter Rabbit, available at <http://www.bbc.co.uk/cbeebies/shows/peter-rabbit>

Topsy and Tim, available at <http://www.bbc.co.uk/cbeebies/shows/topsy-and-tim>

Octonauts, available at <http://www.bbc.co.uk/cbeebies/shows/octonauts>

Grandpa in my Pocket, available at <http://www.bbc.co.uk/cbeebies/shows/grandpa-in-my-pocket>

Make a Picture, available at <http://www.bbc.co.uk/cbeebies/search?q=Make%20a%20Picture>

Numtums, available at <http://www.bbc.co.uk/cbeebies/watch/numtums-numtum1>

Tree Fu Tom, available at <http://www.bbc.co.uk/cbeebies/search?q=Tree%20Fu%20Tom>

I Can Cook, available at <http://www.bbc.co.uk/cbeebies/shows/i-can-cook>

Wooly and Tig Jigsaw Puzzle, available at <http://www.bbc.co.uk/cbeebies/search?q=Wooly%20and%20Tig>

Mr. Bloom's Nursery, available at <http://www.bbc.co.uk/cbeebies/search?q=Mr.%20Bloom%E2%80%99s%20Nursery>

Catch Me If You Can, available at <http://www.bbc.co.uk/cbeebies/watch/grandpa-in-my-pocket-catch-me-if-you-can>

Water Bears Escape, available at <http://www.bbc.co.uk/cbeebies/games/octonauts-water-bears-escape>

Dr Who, available at <http://www.bbc.co.uk/programmes/b006q2x0/episodes/guide>

Daleks, available at <http://www.bbc.co.uk/cbbc/games/doctor-who-game>

Power Rangers available at <https://www.youtube.com/watch?v=N1KezEiGdQQ>

Star Wars available at <https://www.youtube.com/watch?v=JbpgM-JTang>

Melody, available at <http://www.bbc.co.uk/cbeebies/shows/melody>

Cinderella, available at <https://www.youtube.com/watch?v=HKSRbsJVli0>

Angry Birds, available at <http://www.angrybirdsgames.com/games/angry-birds-heroic-rescue>

Hero Factory, available at <https://www.youtube.com/watch?v=QnjfwQg3YQs>

Nina, available at <http://www.bbc.co.uk/cbeebies/shows/nina-and-the-neurons>

Big and Small, available at <http://www.bbc.co.uk/programmes/b00nkbxp>

Disney princesses, available at <https://www.youtube.com/watch?v=kNjOLt-a_bY>

Super Numtum and The Kingdom of Fluffy, available at < http://www.bbc.co.uk/cbeebies/games/numtums-kingdom-of-fluffy>

Transformers, available at <https://www.youtube.com/watch?v=c7Q9gob-onQ>

Mike the Knight, available at <http://www.bbc.co.uk/cbeebies/shows/mike-the-knight>

Thomas the tank Engine, available at <http://www.thomasandfriends.com/en-gb>

The Lingo Show, available at <http://www.bbc.co.uk/cbeebies/shows/lingo-show>

DVDs

Wicked Wizard: Sherston

Tom and Jerry DVD: Warner Home Video

Postman Pat DVD: Cbeebies - BBC

Fireman Sam DVD: HiT Entertainment

Aladdin DVD: Walt Disney Studios HE

CDs

KIKA HITS [A CD songs in German Language]

1. Chapter One: Introduction

1.1 Introduction

This chapter sets the scene for my study, providing the reader with an overview of its nature and scope. Firstly, I outline the aim of my research, which is followed by general background information about the settings in which the study took place. Secondly, I provide an overview of the literature review, noting debates about the new technology in early childhood education and the revered status of play. In particular, I focus on how play continues to be of central significance in early childhood education. Then, I briefly outline new advances in early childhood research based on new understandings generated by research into children's abilities and development. Finally, I conclude with an overview of the structure of the thesis, noting new developments in metacognitive research and the advent of the paradigm of the new social studies of childhood.

1.2 Purpose of the Study

1.2.1 Aim of the Study

This study sets out to examine nursery-aged children's perceptions of their ICT-based experiences in the early childhood setting. Early in 2012, I aimed to undertake a project to explore the practitioners' pedagogical practices in relation to the new technology in the playroom. While still reviewing the relevant literature, I was advised to visit a setting which was known for being well equipped with a variety of ICT resources (e.g., a video, four desktop computers, Interactive Whiteboard (IWB), CD player, replica toys, and printer). After a few visits to this setting, I learned that focussing only on what the practitioners were doing did not satisfy my curiosity. During free play time, children's activities on these resources were vibrant, chaotic and full of energy. I started to develop an interest in what was happening when

children played with technology and how they managed their activities with technology. Activity using ICT was very popular, but disputes among the children were commonplace. This initial experience of the classroom dramatically influenced my research orientation, and I decided to explore children's views of their experiences of new technology, their interactions in these activities and their motivation for joining in.

1.2.2 Research Question

The overarching research question at the centre of my study was:

1- What are nursery-aged children's perceptions of their technology-based experiences in the early childhood setting?

This is a very open-ended question, but is typical of ethnographic research in that it is difficult to know in advance in which direction ethnographic study will go. As will be seen, my research later coalesced around the exploration of play.

1.3 Setting of the Study

The study took place in three nursery settings, located in West Midlands, England. These three settings were privately run, providing day care and education for children from three-months till four-years old. Even though these settings were not chosen to represent the full spectrum of ICT resourcing in early years, two settings were relatively well resourced in terms of ICT equipment and one less so. While there was a variance, the children in all these settings had access to ICT resources in their free play time.

Following the ethnographic tradition, I participated in the daily activities in these nurseries. This participation helped me develop a caring 'friendly adult' relation with the participant children (see chapter three). At the forefront of my fieldwork was listening to young children

and learning from them about their ideas and intentions in relation to their ICT-related experiences. Practitioners' co-operation greatly helped me to feel more comfortable in the conduct of my research and were gatekeepers for my study. In the methodology and study design chapters, I explore further the ethics and practicalities of my fieldwork and the characteristics of the sample settings.

1.4 Technology in Early Childhood Education

Children from a very early age enter a digital world, in which they are inducted through their families' cultural and social practices such as texting, communicating, taking pictures, and so on (e.g., Chaudron et al., 2015; Marsh, 2005; Holloway et al., 2013; Plowman, 2013; Plowman et al., 2010). They are commonly seen as 'digital natives' or a 'new humankind' (Carrington, 2005: 19) growing up in digital environments (Chaudron et al., 2015: 6). Children engage in a range of techno-literacy practices (e.g., playing games, watching TV, showing awareness of text-messaging) in the home, in which they express their preferences and engage in meaning-making activities (Marsh, 2004: 61-62). These young children are not only shaped by the contemporary communicative practices of their communities but also shape these practices (Marsh, 2005: 1-3).

New technology in early childhood education is a hotly debated topic, as for example seen in the continuous debate about the potential of technology to enrich learning and the reluctance on the part of the practitioners to use technology to the full. Adoption of new technology in early childhood education continues to develop, invoking positive as well as negative responses among researchers, commentators, policy-makers and practitioners. The debate is not new (see Barnes and Hill, 1983; Elkind, 1981). Furthermore, this debate is not exclusive to early childhood education, and can be seen as part of a wider discussion about the suitability of technology for children of older ages (e.g., Becta, 2001; Sandford and Williamson, 2005)

This thesis addresses the paucity of research that explores children's views on their experiences with the new technology. While research into the use of technology in schools is common (see chapter two), often use with young children is less researched and reporting of children's own perspectives even less well covered. This research fills a gap.

1.5 Play in Early Childhood

Play lies at the core of early childhood education, and is at the core of my study. Hence, I will signal in this introduction some of the difficulties and debates within the literature. Play is pervasive in childhood (Rubin et al., 1983: 694). It is so pervasive in the early years of childhood that these years have been characterised as 'the play years.' (Frost et al., 2012: 150) Play is an 'absorbing activity' (Scales et al., 1991: 15) in which children engage mentally, emotionally, and physically with their senses. Play is not only a form of behaviour, but also represents children's 'disposition for learning, curiosity, imagination, and fantasy.' (Elkind, 2007: ix)

There is agreement about the essential role of play in early childhood education and development and learning (Axelrod 2014; Howard and McInnes, 2013, McInnes et al., 2011; Wallerstedt and Pramling, 2012). Play is 'an instrument of growth' (Hartley et al., 1964: 28), since the child's body is 'an organ of expression as well as perception' (ibid, 7). Whitbread (1996: 10) claims that '[I]f we are to understand anything about the ways in which young children learn, we must understand first the central role of play'. The central role of play lies in its significance for the developing child. Hence, in the play literature, play is, it is claimed, crucial for all-round development of the young child (e.g., Bateson, 2014; Bruce, 2001; Hirsh-Pasek and Golinkoff, 2008; Rubin et al., 1983; Vygotsky, 1976).

Play has a *revered* status for many writers, but there is an on-going debate and controversy with regards to both its definition and its developmental benefits, as will be discussed more fully in chapter two. Play is a special type of behaviour which combines internal (e.g., concentration, feelings, motives, interests, etc.), and external (e.g., lively movements, running, making, creating, active engagement, laughing, etc.) qualities. These qualities appear differently depending on which type of play is engaged in, the children involved, and the environment in which they play. As a result, the features that characterise play are both dynamic and 'legion' (Chudacoff, 2007: 1-2). That is, they 'traverse a spectrum from elation and freedom to tension, conflict, and destructiveness. Along this path lie various intensities of behaviour: fantasy, competition, risk, and mimicry.' (ibid, 1-2).

The complexity of play has led to some researchers describing it as a 'recalcitrant notion', especially given that 'the fringes of the concept are fuzzy.' (Garvey, 1990: 2) It is also described as 'elusive' in terms of capturing its characteristics, constructs and meanings in one definition (Moyles, 2012; Wood and Attfield 2005). Accordingly, this difficulty in defining precisely what play is seems to be an inevitable result of its very complex multi-layered nature. Not surprisingly, firm evidence about the connection of play to young children's development and learning has yet to be fully established (Bennett et al. 1997; Hirsh-Pasek and Golinkoff , 2008; Howard, 2010; Howard and McInnes, 2013). Therefore, even though play has been a subject of extensive research and studies, 'it seems we do not seem any nearer to comprehending it or valuing it.' (Moyles, 2012: 1).

Another complexity concerning play is mentioned by Schousboe and Winther-Lindqvist (2013: 3). These authors contend that the problem classic scholars have had with play is that they ignore the negative sides of play, and leave out accounts of children's own meanings and understandings of play. According to Howard (2010: 146), there is a need to consider children's own definitions of play, which may differ from the theoretical perspectives available in the

literature. For instance, research has shown that children have their own ways of characterising what they consider to be play (Factor, 2009), and although play is 'the natural language of the child', its meanings are personally specific to the child (Hartley et al., 1964: 40-43).

This complexity surrounding play has motivated some researchers to focus on defining play as an approach or a disposition to an activity, rather than on the basis of observable behaviours that may not necessarily reflect the intentions and meanings of the playing child (e.g., Bundy, 1992; Howard and McInnes, 2013; Thomas et al., 2006). According to Thomas et al. (2006: 52 emphasis added), play as an approach to an activity means '*playfulness'*. Playfulness can only be understood by taking the perspective of the players into account (ibid, 53). In addition, Howard and Mclnnes (2013: 40) in discussing the problem of defining play argue for considering playfulness and for differentiating play from both what is not play and exploration. Exploration is a serious attempt on the part of children to discover the properties of a new object, whereas play is about using this object in new contexts (i.e., different possibilities) in a relaxed way (Hutt, 1976; Rubin et al, 1983). However, from my own perspective, this distinction between play and exploration is not helpful either, since there is no clear cut difference between play and exploration, at the very least in the mind of the youngster, who considers their actions as play, regardless of whether the end point is play or exploration (see also Frost, et al., 2012). Other researchers do not try to confine the construct of play according to one definition. For instance, Hyson (2014: 7, emphasis added), depending on the audience, 'use[s] the word *play* differently'. Hyson (2014: 7) further explains that

> [U]ndergraduates are learning that play supports young children's learning in content areas. Teachers seek scholarly explanations of play to support their practices. Graduate students and scholars try to craft new knowledge that relates to scholarly definitions of play. Same word; different meanings.

Furthermore, regardless of the complexity of defining play, play is 'a key component of the child's early life, which is why denying play to children can amount to abuse of their rights.' (Moyles, 2012: 2).

Common-sense suggests that play is what children normally become involved in, and what they like. However, as discussed earlier, defining play is extremely problematic. This issue results not only from its very complex nature (i.e., a variety of play types) but also from its variety of cultural, individual, social, academic, and categorical resonances. Sheridan (2011: 4) provides a useful beginning in this regard. They suggest that play is a behaviour, a process, and an approach to an activity, at the same time. But what kind of behaviour is play exactly? Is it the same or different from other kinds of behaviour? That is, what defines this kind of behaviour that makes it so special that it is warranted to be labelled as play?

To summarise, in exploring young children's play, the researcher needs to bear in mind that there is no agreement on the construct of play, coupled with an awareness of accessing children's own definitions of play.

1.6 Significance of the Study

This study gains its significance firstly, from its attention to the voice of young children in relation to their experiences with the new technology in the nursery setting. This voice is often missing in the literature, and addressing this gap has been the motive for my study. Plowman (2015: 37-38) and Plowman and Hancock (2014: 4) note the lack of three- to four-year-old children's voice in research into technology in the home environment. I would also venture to suggest that nursery children's voice is also missing, as few studies have ventured to explore children's perspectives on their experiences. The review of the literature (chapter two) indicates that research either focuses on experiences rather than perceptions, or explores perceptions in a rather limited way (e.g., in terms of positive or negative reactions). This lack of children's

voice is particularly surprising, given the commonplace use of new technology in young children's lives. Plowman and Hancock, (2014: 4) note that accounts of children's perspectives, 'such as the EU Kids Go Online project', are 'relatively unusual' since 'typically it is adult research shaped by adult concerns rather than trying to understand why children and young people want to explore and take risks, but without coming across material that upsets or scares them.' As discussed in the new approach to studying children's lives, children have their own concerns and views that may not accord with those of adults (see chapter 2). Commenting on this lack of the visibility of young children's voice, Plowman (2015: 38) argues that '[W]e are at a relatively early stage of putting children, particularly very young children, at the centre of our studies of technology at home.'

Secondly, the significance of the study is that it provides an examination of the influence of the new technology on nursery-aged children's play (Fleer, 1996: 14; Stephen and Plowman, 2014: 339-340). As noted earlier, the construct of play is elusive, and so is that of digital play (Stephen and Plowman, 2014: 337). As Fleer (1996: 14) points out, the proliferation of the new technology in children's play seems to pose new challenges and complications to the existing notions of play. While this study was indirectly interested in exploring the influence of the new technology on their activities, as the fieldwork progressed, it became clear that this technology was influencing their meanings of play, patterns of interaction, and the development of the activity into, for example, playful experiences. This study contributes to our understanding of the nature of digital play by exploring nursery-aged children's conceptions of their technology-based experiences.

Thirdly, the study could also be seen as making a contribution to literature on the influence of objects (Hultman and Taguchi, 2010; Prout, 2005). While a plethora of research studies have explored the impact of object distribution on young children's interaction (see chapter 6), the

focus has been almost always on the influence of traditional objects and toys. These studies show that young children tend to focus on fair distribution of the play resource, and this overcomes their friendship relationships. Only limited research has explored the influence of new technology (e.g., O'Hara, 2008; Plowman et al., 2010). This research has shown the dominance of the technical aspect of interaction (e.g., having turns), but this does not explain the meanings for children of technology-featuring activities. That is, the social and moral aspects of the activity in the context of the new technology need further examination. This thesis will examine these dimensions of children's technology-based activities by exploring the type of experiences that the new technology provides them from their own perspectives.

1.7 Structure of the Thesis

This thesis is divided into seven chapters. This section provides an overview of the contents of each chapter, demonstrating how each one is organised in relation to the overall research activity.

This introductory chapter provides a brief background to the thesis, presenting broad themes in the discussion of technology and the centrality of play in early childhood education. It describes my research as focused on children's perceptions.

The second chapter offers a review of literature on early childhood education, presenting a brief history of early childhood education in the UK, exploring child-centredness, research on technology and the role of play. It also draws on the newer understandings of children's abilities, for example, recent research on children's metacognition, and the United Nations Conventions on the Rights of the Child (1989). This review of the literature sets the scene of the research study by noting current thinking about children and their development, and helping to identify gaps leading to my research questions. It defines the terminology used, exploring what ICT is and its role in their lives in the classroom and at home. It reviews the evidence in

relation to children's perceptions of the new technology and the other studies that explored their perceptions of play.

In the third chapter, I provide a discussion of the qualitative research tradition in general and in the particular context of research with children. I then discuss the ethnographic methodology, and outline its philosophical basis and its influences on my choice of data collection methods, fieldwork conduct and role in the field. The criteria for ensuring the quality of the data collected are described. I also examine new insights from research with children that influenced my research methods, and discuss the ethical considerations of my research. Based on these methodological decisions, this chapter goes on to discuss the study design, describing the three case study settings. The practical circumstances of this selection of the settings which formed the context for data collection are explored.

The fourth chapter complements the methodological framework with an analytical framework for handling and analysing the data collected. I discuss some techniques for providing greater validity of my data analysis. Thematic Analysis, TA, will be seen as consisting of six stages of data analysis process, starting with transcribing video/audio-recorded material, familiarising myself with the data, coding it and through to the emergence of two themes and their sub-themes.

The fifth chapter discusses the two themes which emerged as clear organising concepts for the data: play and not play. Play is explained in considerable depth with sub-themes of self-led, fair, friendship, gender and fun. Examples of fieldwork and extracts from the children's words are provided.

Chapter six sets the scene for looking at the findings in the light of the literature, demonstrating points of similarity and contrast. This chapter moves the research from presenting the findings

to critical thinking about play with technology and looking at the children's reasons for their own actions.

The final chapter concludes this study with both a consideration of the contribution of this study to the growing research literature on technology and play in early childhood education, and recommendations for policy makers, researchers and practitioners.

1.8 Summary

This chapter briefly outlines this study. I have introduced some of the key debates about technology and play in early childhood education. I also introduced the purpose and the question of the study. In the next chapter, in addition to reviewing the literature in relation to early childhood education and research on technology in the play-classroom and at home, I will draw on the changing context of understanding children and perceiving their developing competencies.

2. Chapter Two: Literature Review

This chapter introduces theoretical ideas about play, learning and development that are of historical importance and contemporary interest. By consideration of the foundations of play theories, including theories of Piaget and Vygotsky, the chapter will illustrate how play as a cultural activity is not simply part of development process of growing complexity but underpinned by cultural values and assumptions of educators, policy-makers and children themselves. Moreover, play is formalised in early-years pedagogies. Hence opportunities to play in pre-school context reflect goals and purposes of the early years curriculum. This leads to tensions between adult-led and child-initiated play.

The literature review is divided into four sections. The first section starts with a general discussion of the context of early childhood education. It provides a brief historical background, explains the idea of child centredness, highlights the role of play and its complexity, identifies teachers' conceptions and outlines some distinctive features. Debates about play are discussed, and new perspectives about play are presented. Section two explores ICT in early education, clarifying debates about its role, exploring its pedagogical influences, addressing children's use of technology at home and at nursery, and exploring their perspectives on these experiences. This discussion frames the problem of the present study (i.e., dearth of studies that explored young children's perceptions of their own ICT-experiences). The third section explores theories of Piaget and Vygotsky on children's development and critiques them in the light of recent advances in the field of research with children. This section also highlights the development of children's metacognition, exploring research evidence in this area. Section four concludes the chapter with reflections on the literature discussed here, highlighting key issues and implications for my study.

2.1. Early Years and Play

This section discusses the wider context of early years' pedagogical practices in terms of the teaching and learning that takes place. This section of the review has the following purposes:

- To offer a brief historical background to early-years education in England
- To explain the idea of child-centredness
- To highlight current debates and new perspectives on play
- To identify teachers' conceptions about early-years teaching
- To outline some distinctive features of early-years classrooms

2.1.1. A Brief Historical Background to Early Years Education in the UK

The historical roots of early childhood education in the UK lie in the voluntary and charitable schools beginning to emerge towards the end of the eighteenth century and the early period of the nineteenth century (Kwon, 2002: 1). For example, Robert Owen (1771-1858) in 1816 founded an infant school at New Lanark in Scotland caring for children of families who worked in cotton mills, which was the first of its kind in Britain (Kwon, 2002; Whitbread, 1972).

A few years after the introduction of the Education Act in 1870, primary school education became compulsory to all children aged from 5 to 13 years old in 1888 (Kwon 2002). At that time, younger children were admitted to schools, but there was no special provision for them (ibid). In England, Margaret McMillan pioneered the formation of the nursery school (Whitbread, 1973: 60). She was mainly concerned with the well-being of younger children (for example, stressing the importance of disease-free environment and fresh air), and with the help of her sister, Rachel McMillan, opened an open-air nursery school in 1913 (Kwon, 2002; Whitbread, 1973).

Pre-dating post-war initiatives by successive governments, the Hadow Report (Board of Education, 1933) argued for an early-years education that recognised that the first years of life were vitally important for personal development and that good schools were characterised by a sense of community. The curriculum, it was argued, should focus on activity and experience rather than knowledge to be acquired and facts to be stored. Hadow recommended modern ways of teaching young children, the employment of classroom helpers in infant schools, and the widespread of provision of nursery education, all of which resonate with current thinking about early childhood provision. In fact, some themes in Hadow Report were taken up in the Education Act (1944) which aimed mainly at providing equal opportunities for children of all backgrounds. It gave Local Education Authorities (LEAs) the duty of making provision for children from two to five.

The impetus towards expanding early-years settings on the basis of private efforts by parents and other interested groups continued. For example, in 1961 Belle Tutaev opened a play group to educate her daughter as a solution to the absence of nursery settings at that time (Kwon, 2002). However, the introduction of the National Curriculum, which was introduced in England and Wales (1988), represented the end of a laissez-faire period in early-years provision and the start of the government regulation and control (Kwon, 2002: 8). Since then, the early-childhood curricula and their organisation have been under increased regulation by successive governments.

In terms of pedagogical practice, early-years education became closely identified with child centredness at some point towards the end of the nineteenth century, and its prominence has continued (Chung and Walsh, 2000: 215). However, practice varied, and as part of a proposed overhaul of the educational landscape of the primary schools, Plowden (1967) was asked to

reconsider the primary curriculum in UK schools. This might be seen as a move to establish a more unified education albeit one based on considerable teacher autonomy.

According to O'Sullivan (2004: 585) and other commentators (e.g., Darling, 1994), the Plowden report (1967) led to the widespread adoption of a child-centred approach in primary education. A key phrase in this report (the beginning of chapter 2) was '[A]t the heart of the educational process lies the child.' Particularly influential on Plowden was the work of Piaget, whose work was at its peak of influence at that time. Some of Piaget's thinking in relation to children's learning and development will be discussed later in the child development section. However, the subsequent research did not find this widespread change in the primary schools. For example, Bennett's study (1976) indicated that among the primary school teachers that participated in the study a high proportion could not be classified as 'progressive' or 'informal'. The majority of students' work was dominated by teachers' directions (ibid).

Plowden's report was not universally accepted and, indeed, was criticised by many researchers (e.g. Naish et al., 1976; Bennett, 1987; Dearden, 1973; among many others), and the reference to Piaget was unfortunate as his influence has waned considerably over the years. Instead, over the past 20 or 30 years governments have been seeking greater control over the curriculum and providing more prescription over what is taught and how it is assessed, rather than the teacher independence called for by Plowden (1967). Hence, the curriculum has become more prescriptive with pre-specified aims that early-years teachers are supposed to work towards. As an example, a document published by the School Curriculum and Assessment Authority (SCAA, 1996) provided practitioners with curriculum guidance and set up learning goals that aimed to 'ensure' young children's readiness for compulsory school (Faulkner and Coates, 2013: 284).

In the early 1990s, a plethora of governmental initiatives were launched with the intention of improving the quality of education provided to three- and four-year-olds. The Rumbold report, *Starting with Quality,* (Department of Education and Skills (DES), 1990) stressed the importance of quality in early-years education, and recommended a curriculum based on eight main areas of learning: aesthetic and creative, human and social, language and literacy, mathematics, physical, science, spiritual and moral, and technology. The recommendations of the *Starting with Quality* report aimed at ensuring a smooth transition to the 1997 National Curriculum (Faulkner and Coates, 2013). This was followed by another report, *Aspects of Primary Education: The Education of Children Under Five,* which offered examples of good practice in educational provision to young children (ibid, 247). As noted by Faulkner and Coates (2013), the Conservative Government envisaged that the expansion of nursery education would be via the voluntary and private sectors in competition with the state-maintained sector, and the logical consequence of this was a Nursery Voucher scheme in 1996. The introduction of the voucher scheme was linked to a set of guidelines and learning goals for pre-statutory settings: *Desirable Outcomes for Children's Learning* (Faulkner and Coates, 2013; Kwon, 2002). In fact, there were and continue to be different types of childcare available for children under 5 including childminders, nanny/home child-carers, private and voluntary day nurseries, independent schools, maintained nursery schools, nursery classes in primary schools, infant classes in primary schools, pre-schools and playgroups, play centres, activity clubs, and parent and toddler groups (Department for Education (DfE), 2014a).

The Conservative's voucher scheme was abandoned by the incoming Labour Government, and the framework of *Desirable Outcomes* was revised as *Early Learning Goals* (Faulkner and Coates, 2013; Kwon, 2002). Continuing with the theme of improving educational experiences of under 5s, the Labour Government launched the *Sure Start Local Programme* as an early intervention programme. In 2003, *Every Child Matters* was introduced (HM Treasury, 2003)

as an extension to *Sure Start*, and highlighted the Government's commitment to children's rights and identified goals that educational provision to you children should cover.

In 2006, the Department for Children Schools and Families (DCSF) introduced the *Early Years Foundation Stage Framework* (EYFS) which built on previous frameworks (Faulkner and Coates, 2013). This set the standards for 'the learning, development and care' that young children should experience in a setting, and argued for inclusion (DCSF, 2008a: 7).

A review commissioned in 2010 looked at the EYFS framework for a new government. According to the Tickell review (2011: 28), the EYFS did not specify the approaches that practitioners should follow in order to help children learn and develop, but it did stress the importance of 'well-planned play' and a balance between child-initiated and adult-led activities across all areas of learning. Early-years teachers were required to implement the areas of learning and development through 'planned, purposeful play and through a mix of adult-led and adult-initiated activity' (DfE, 2014: 9).

The framework explained the role of the teacher in rather general terms and this broad brush approach continued in discussing technology. In 2000, the Foundation Stage was introduced and set out the early learning goals for children aged 3 to 6 (DfEE, 2000). The goals for knowledge and understanding of the world included: children will be able to 'find out about and identify the uses of everyday technology and use information and communication technology and programmable toys to support their learning' (DfEE, 1999: 99). However, DfEE did not specify how teachers would put this goal into their practice. In fact, many early childhood educators tended to view their direct interaction with children as formal instruction and tended to avoid it (Plowman and Stephen, 2007). This framework and other policy documents tended to consider the use of technology as an outcome but not as an activity contributing to learning, creating challenges for educators (Edwards, 2013: Plowman, 2016).

According to Soler and Miller (2003: 58-66), the EYFS curriculum is centralised, goal-oriented, stressing the vocational and instrumental visions of education. This contrasts with some countries. For example, the Regio Emilia educational approach adopted a 'progressive view' emphasising the individuality of the child, where goals for learning are designated in broad terms (ibid). This has led to some commentators wanting a higher focus on outdoor play, child-centredness, and establishing relationships between the setting and the family (Faulkner and Coates, 2013; Soler and Miller, 2003).

In summary, what the review suggests is a hyperactivity in policy in recent years. It also suggests a long held attachment to play and a wariness of intervention on the part of teachers. This is set against governments seeking to promote more teacher intervention and more prescriptive frameworks. A further striking feature of early-years education is its diversity. A recent survey by the DfE (2016) shows that the total number of registered childcare places across all types of provision in England was 1,198,700. The most common type of provision for children was reception (734,000), and then nurseries, childminders, school-based before school sessions and school-based after school sessions (DfE, 2016). This survey also shows the qualifications of the workforce in early education. The majority of head-teachers in nurseries and receptions held at least NVQ level 3. At least half of early-years staff held at least level 2 (Nutbrown, 2012). There remains, however, great discrepancy in qualifications between the different parts of the sector. Roberts-Holmes (2013) notes that 78% of English early years provision is in the private, voluntary and independent sector, with a workforce that is less well qualified. Moreover, as noted by Aubrey and Dahl (2014) the difference in the skill-set and expertise between maintained and non-maintained provision has implications for the learning environment required by the digital age and children's engagement with new technologies.

2.1.2. Play: Its Role in Early Years Education

Play has always been central in early childhood education. It is the building block for thinking about curricula, pedagogy, policy and practice. Play is a form of behaviour (Bateson, 2014; Klugman and Fasoli, 1995; Wisneski and Reifel, 2012) and a mode of communication (Sutton-Smith, 1997: 23) that is so pervasive in the early years (Robin et al., 1983: 694) that these years have been characterised as 'the play years' (Frost et al., 2011: 150). It is an 'absorbing activity' (Scales et al 1991: 15) in which children engage mentally, emotionally, and physically with their senses. Play is not only a form of behaviour, but is children's 'disposition for learning, curiosity, imagination, and fantasy.' (Elkind, 2007: ix)

Although 'fragile' and often 'contradictory', there is a broad agreement as to the essential role of play in early childhood education, development and learning (Axelrod 2014; Brooker, 2011; Brooker et al., 2014; Howard and McInnes, 2013; Klugman and Fasoli, 1995; McInnes et al., 2011; Sherwood and Reifel, 2010; Wallerdtedt and Pramling Samuelsson, 2011). Play is 'an instrument of growth' (Hartley et al., 1964: 28), since the child's body is 'an organ of expression as well as perception' (ibid, 7). Whitebread (2015: 10) claims that '[I]f we are to understand anything about the ways in which young children learn, we must understand first the central role of play'. In the literature, play is crucial for:

- cognitive development such as abstract thinking (Bruce, 2001; Rubin et al., 1983; Vygotsky 1976), the development of attention span (Rubin at al., 1983: 716), and pretend play supports the child's self-concept development (Hartley et al., 1969; Rubin et al., 1983)
- the development of metacognitive abilities, such as self-regulation (e.g., planning, evaluating) (Hirsh-Pasek and Golinkoff, 2008; Vygotsky, 1976), theory of mind (Bruce, 2001), and reflective thought (Rubin at al., 1983: 716)

- social development including the development of co-operation (Jones and Reynolds, 1992; McArdle, 2001; Rubin, et al., 1983) - in pretend play the child becomes aware of other children's needs and desires (Hartley et al., 1964: 18-19), and the development of social competence (Hirsh-Pasek and Golinkoff, 2008)
- emotional development (Rubin et al., 1983: 706) - play promotes children's expressiveness (Singer and Rummo, 1973) in that their feelings, motives, and imaginations are 'put into action' while playing (Hartley, et al., 1964: 4), and dramatic play offers the child a safe environment to release their feelings and emotional difficulties (ibid, 8)
- encouraging creativity (i.e., discovering new possibilities in the face of environmental challenges, whether of social or physical nature) (Bateson, 2014: 99-110)
- children's psychological and physical well-being (i.e. play occurs only if the child feels stress-free and their biological needs are satisfied) (Bateson, 2014: 102)
- the development of children's fine and gross motor control (Glover, 1999)
- the development and learning of language (Ervin-Tripp, 1991; Jones and Reynolds, 1992), literacy (Dyson, 1991; Hirsh-Pasek and Golinkoff, 2008) and maths (Hirsh-Pasek and Golinkoff, 2008).

The idea of play as central to the all-round development of the young child often emerges from a developmental discourse in which play is regarded as positive in children's education (Ailwood, 2003: 288). This is what Sutton-Smith (1997: 36) described as 'progressive' rhetoric about play. These discourses and other related matters will be discussed below, outlining their role(s) in contributing to the ambiguity of play and highlighting discrepancies between play rhetorics and play practice (Sutton-Smith, 1997: 216). Before discussing these discourses and other matters, I will present some theories of play, and an account of the complexity of play and its role in further contributing to the ambiguity of play.

2.1.2.1. Theories of Play

Mellow (1994: 91) divides theories of play into two broad categories: classic and modern theories of play.

Mellow proposes four classic theories:

1- Surplus energy theory (Spencer, 1820-1903): here, play is seen as a characteristic activity of childhood, and has no evolutionary function (Mellow, 1994: 91). Instead, play is a pleasurable activity that helps the human being to dispose of the surplus energy that has not been used for serving its survival needs (ibid, 91).
2- Relaxation theory (Patrick, 1916): in sharp contrast to the previous theory, play is conceptualised as an activity that assists human beings in restoring lost energy in work by providing them with the opportunity to relax and engage in creational activities (ibid, 92).
3- Pre-exercise theory (Groos, 1896, 1901): play is a characteristic of childhood and helps the child develop and exercise skills and activities that will be advantageous for their survival in the future (Mellow, 1994: 92).
4- Re-capitulation theory (Hall, 1920): this theory views individual development as a reiteration or re-enactment of the general stages of the species' development in play (Mellow, 1994: 93). This helps children to get rid of their primitive instinct characteristics (ibid, 93).

These classis theories were contrasted in Mellow with modern theories. A variety of theories of play can fit under the category of modern (e.g., Bateson's meta-communicative theory, 1955; Sigmund Freud's psychoanalytic theory, 1961), but the main focus here is on the cognitive and socio-cognitive theories of play provided by Piaget (1951, 1962) and Vygotsky (1976). Piaget, in particular, proposed a stage theory of psychological development of young

children that influenced their capacity for play. For Piaget, development occurs mainly through the processes of assimilation (i.e., adapting reality to internal mental structures), accommodation (e.g., modifying internal mental structures to fit with new discoveries about outer reality), and equilibrium (i.e., a process of balance between assimilation and accommodation) (Mellow, 1994: 95).

The literature suggests that pretend play starts after the first year of childhood and continues to develop through pre-school period and fades gradually when children start their elementary education (e.g., Rubin et al., 1983). Pretend play can be either solitary or social, and is 'variously referred to as make-believe, fantasy, symbolic play, socio-dramatic play, or dramatic play, where children experiment with different social roles' (Hirsh-Pasek and Golinkoff, 2008: 1). Symbolic play shows 'the appearance and development of the semiotic function, that is, the understanding that one thing (a signifier) can stand for something else (that which is signified).' (Rubin et al, 1983: 705-706) According to Rubin et al. (1983: 706), this form of play is assimilative in nature, since the child's actions and objects are abstracted form their real contexts, and used in new ones, signifying the child's inner meanings.

A more sophisticated and elaborated view of play and its role in the development of symbolic thinking is presented by Vygotsky (1976). Vygotsky (1976) viewed play as a developmental activity of the pre-school child. While the play of the pre-operational child is regarded as egocentric by Piaget, Vygotsky was alive to the development of symbolic thinking when the child begins to represent actions with symbols (Vygotsky, 1986: 28). As well as acknowledging its role in intellectual development, Vygotsky (1976) also viewed play as having a role in fulfilling the child's needs (e.g., physical needs, direct experience with the environment's objects, gaining knowledge about these objects), incentives to act (e.g., motives to interact with the world and its objects, to find out about its properties, to experiment and create), and

expression of emotions and desires (e.g., realising their wishes through imaginary play). The development of needs leads to play (i.e., play comes to the scene when a child has an unrealisable tendencies in the development) (ibid, 538). Through play, the pre-school child satisfies at the imaginary level those wishes that cannot be realised immediately, even though the child is not completely conscious of their motives and incentives to play (ibid, 539).

According to Vygotsky (1976: 545), a major development in children's thinking occurs when they transcend contextual constraints and use an object as a substitute for another thing. Therefore, the child's actions become independent from the field of perception, as the child reacts to the perceived objects not as seen, but in accordance with the child's meaning and thoughts (ibid, 545-546). Accordingly, play is a transitional stage in development (i.e., the child's mental development of the ability to separate meanings from objects) (ibid, 546). At this stage, the rules of play are not dictated by the object, but rather by the child's thoughts and meanings. Unlike adults who are capable of the conscious use of symbols, the child needs a pivot (e.g., a stick) to separate the meaning of a horse from a real one (ibid, 546-547). The child's psychological relationship to reality (i.e., through perception) is dramatically changed, as the source of the child's actions and social interactions with the world is their ideas and thoughts (ibid, 546-547):

> the child operates with meanings severed from objects and actions, but in real action with real objects he operates with them in fusion. This is the transitional nature of play, which makes it an intermediary between the purely situational constraints of early childhood and thought which is totally free of real situations. (Vygotsky, 1976: 547)

Another developmental role of play is that play provides a context for the development of self-control. The child behaving in accordance with the rules in the play situation experiences double resistance (i.e., the least and the greatest resistance) (ibid, 548). On one hand, in play, the child experiences sheer happiness, as play is what they like. On the other hand, the child

curbs their impulses and submits to the rules of the game. The child actively controls their actions and behaviours in order to conform to the requirements of the rules of the play. All of the developmental significances of play mean 'a child's greatest achievements are possible in play- achievements which tomorrow will become his[sic] average level of real action and morality.' (Vygotsky, 1976: 549)

In relation to the zone of proximal development, play assists the child in advancing learning into a new phase. In the imaginary play situation, the child follows rules voluntarily, plans actions, realises their wishes and feels the pleasure of the situation. The child creatively transfers elements of reality through imaginative play experiences, and thus realises their wishes, and acts on their thoughts. The child's imagination, wishes and will are represented in their external actions. Moreover, in voluntarily subordinating oneself to the rules of the situation, making action plans and achieving wishes, the playing child creates their zone of proximal development (i.e., the next stage of development). Hence, based on this developmental role of play, Vygotsky (1976: 552) considered play to be 'the leading source of development in pre-school years' and 'the highest level of pre-school development.'

2.1.2.2. Complexity of Play: Difficulty in Defining Play

Play has a *revered* status for many writers, but there is an on-going debate and controversy with regards to both its definition and its developmental and educational outcomes (Howard, 2010; Howard and McInnes; 2013; Moyles, 2012; Sutton-Smith, 1997; Wood, 2013; 2010). Play is 'difficult to understand because it is ambiguous' (Sutton-Smith, 1997: 214), and a great deal of this ambiguity comes from, among other things, the fact that play is complex in nature and scope. In particular, play is influenced by the participants and their characteristics, experiences and perceptions (Howard, 2010; Moyles, 2012; Wood, 2013; 2010). Hence, play has many forms (see section 2.1.3.5. page 35), and involves different players, different games

and play equipment that result in different scenarios and experiences. Theorists, including developmental theorists, researchers and socio-cultural researchers have different interests in play, and look at play through a different lens (Sutton-Smith, 1997: 5-8). The generic way in which play is discussed by different stakeholders (e.g., parents, practitioners, teachers, policy-makers, etc.) adds to the confusion (Klugman and Fasoli, 1995: 200).

Play as a special type of behaviour combines internal (e.g., concentration, feelings, motives, interests, moral thinking, etc.), and external (e.g., lively movements, running, making, creating, active engagement, laughing, etc.) qualities (Klugman and Fasoli, 1995: 197). Play appears differently depending on which type of play is engaged in (e.g., functional, symbolic, games with rules, dramatic, socio-dramatic, rough-and-tumble, constructive play), the children involved and their perceptions (e.g., their age, sex, socio-economic status, attitudes, confidence, and other developmental characteristics), and the environment in which they play (e.g., home versus nursery, alone versus group play, play with peers versus play with adults, nursery versus school setting). As a result, the features that characterise play are both dynamic and 'legion' (Chudacoff, 2007: 1-2). They traverse a 'spectrum from elation and freedom to tension, conflict, and destructiveness. Along this path lie various intensities of behaviour: fantasy, competition, risk, and mimicry.' (Chudacoff, 2007: 1-2). The complexity of play extends to practices and pedagogies in early childhood settings. For instance, while teachers and practitioners view play as invaluable for children's learning and development, they tend to incorporate play in a variety of ways (e.g., to teach academic skills, as a reward, as a form of classroom management) (Klugman and Fasoli, 1995; Sherwood and Reifel, 2010).

As pointed out, play is complex, and this complexity has encouraged some researchers to describe play as a 'recalcitrant notion', noting 'the fringes of the concept are fuzzy.' (Garvey, 1990: 2). It is also described as 'elusive' in terms of capturing its characteristics, constructs and

meanings in one definition (Moyles, 2012; Wood and Attfield, 2005). Accordingly, this difficulty of defining precisely what play is seems to be an inevitable result of its very complex multi-layered nature (Howard, 2010; Moyles, 2012; Wood, 2013; 2010). Therefore, although play is 'the natural language of the child', its meanings are personally specific to the child (Hartley et al., 1964: 40-43).

Given this complexity, firm evidence on the connection of play to young children's development and learning is yet to be established (Hirsh-Pasek and Golinkoff, 2008; Howard, 2010). Howard and McInnes (2013: 20) attribute the lack of research-based evidence to the fact that play behaviour of children is defined differently, and that there is a lack of methodologically and experimentally sound play studies. Therefore, even though play has been a subject of extensive research and studies, 'it seems we do not seem any nearer to comprehending it or valuing it.' (Moyles, 2012: 1).

2.1.2.3. Discourses of Play

Play is a loaded concept. That is, play is regarded as central for certain educational and developmental purposes. This has led to the generation of discourses of play, identified by Ailwood (2003: 288) as: romantic/nostalgic (i.e., play is always regarded as positive and innocent), 'characteristics' (i.e., play is free, natural, fun, spontaneous and intrinsic) and developmental (i.e., psychological theories of Piaget and Vygotsky) discourses. These discourses have become scrutinised and have been criticised for the contradictions and confusions which they cause in practice. In what follows these critiques will be discussed, illuminating contradictions in practice.

2.1.2.4. Problematizing Key Concepts in Play

The discourses of play that characterise play as free, innocent, aimless, pleasurable and a source of learning and development have been challenged, and researchers increasingly consider them as often assumed or idealised without empirical support (e.g., Ailwood, 2003; Brooker, 2010; Rogers, 2010; Sutton-Smith, 1997; Wood, 2010). Ailwood (2003: 289) argues that discourses of play are detached from social and cultural contexts. This is especially so in the context of curriculum regulations and planning, and new popular culture, which put physical and temporal restrictions on children's play (Ailwood, 2003; Wood, 2010).

Play is Child's Activity: Work and Play

The rhetoric of progress (i.e., skill mastery, growing) separates adulthood and childhood, and hence puts play in realm of childhood as a creative, innocent and open activity (Sutton-Smith, 1997: 19). There is a long-standing debate in the history of early childhood education regarding work and play (Rogers, 2010: 152). The association of children and play not only separates children from the adult 'real' world but also trivialises children's play, in that it can be regarded as 'non-real' and hence provides adults with the opportunity to exercise power over play activities of children (Ailwood, 2003; Jones and Reynolds, 1992; Rogers, 2010; Strandell, 2000; Thorne, 1993). In addition, this low status of play prioritises school work over children's play (Sutton-Smith, 1997: 19). The separation also gives the impression that children's play is free, enjoyable, fun, easy and spontaneous (Ailwood, 2003; Rogers, 2010). As a result, there are two opposing poles: on one hand, play is free and aimless, and on the other, play is being utilised to achieve educational goals that characterise work (Rogers, 2010: 153).

Increasingly, there is a recognition in the play literature that children's play is not always fun (Ailwood, 2003; Grieshaber and McArdle, 2010; Sutton-Smith, 1995; Wood, 2014), due to many factors including asymmetric power relations among children, cruel physical play,

teasing, instrumental play, non-play activities may be seen as more enjoyable (Ailwood, 2003; Grieshaber and McArdle, 2010; Schousboe and Winther-Lindqvist, 2013). There is a 'dark' side of play, or what is called 'dark play' (Sutton-Smith, 1997: 132), where children fail to develop the skills that enable them to play happily (Grieshaber and McArdle, 2010: 8). Furthermore, in play, children experience exclusion and subsequent feelings of discomfort (Grieshaber and McArdle, 2010: 8).

Regarding the nature of work, work is often of an obligatory nature, whereas play is for the most part characterized by its voluntary nature (Chudacoff, 2007: 1). Children themselves are aware of this issue (e.g., King, 1978; Wing, 1995; see also section 2.1.3.5.). Children are serious about their play, just as adults are in their work, but with some substantial differences: all of us have observed how children immersed in play react to an intruder who spoils or tries to spoil their play. Their reaction is emotionally charged, as they are caught up in the serious business of play. Work is serious in terms of losing or winning. However, play is more oriented towards process (Factor, 2009; Klugman and Fasoli, 1995; Rubin et al., 1983), and less towards ends. Work has more of an intentionally pre-planned nature, with aims that have to be met. In contrast, play is spontaneous, and children can improvise and change the rules and context of play as they wish. Young children normally differentiate between play and work, and associate work with their parents and teachers, and play with their own behaviours and friends (e.g., King, 1979; Wing, 1995). In addition, Bundy (1992: 217) suggests that '[W]ithout playfulness, all activities become work.'

Vygotsky (1978) argued that play cannot be defined on the basis of pleasure alone, since there are some activities that are more enjoyable than play:

> The definition of play on the basis of the pleasure it gives the child is not correct for two reasons – first, because we deal with a number of activities which give the child much keener experiences of

> pleasure than play. ….. On the other hand, we know of games in which the activity process itself does not afford pleasure – games ……. which only give pleasure if the child finds the result interesting; there are for example, sporting games …… They are very often accompanied by a keen sense of displeasure when the outcome is unfavourable to the child. (Vygotsky, 1966; 62)

Play and exploration

Some play researchers and theorists have identified a distinction between play and exploration (e.g., Hutt, 1976; Rubin et al, 1983). Play is differentiated from exploration since in exploration, the child asks 'What is this object and what can it do?' (Rubin et al., 1983: 699) Thus, in terms of exploration, the child aims to gain familiarity with a new object, finding out about its properties. The child's exploratory behaviour is 'dominated by the stimulus', since it is solicited by that stimulus (i.e. discovering what a new object is) (Hutt, 1976; Rubin et al., 1983). In contrast, in play the child asks 'What can I do with this object?' (Rubin et al., 1983: 699). Play takes place in a known environment, in which the child is familiar with the properties of play objects (Hutt, 1976: 211). Thus, play is dominated by the child, since the child uses a familiar object in their play activity, directing play and attributing meanings to it. Play is what the child can do with an object (Rubin et al., 1983: 699). The child is safe and relaxed in play, as 'evidenced not only by changes in facial expression, but in greater diversity and variability of activities.' (Hutt, 1976: 211) For instance, the child uses an object like Lego as a car, or to build a house, to make an airplane, etc., in their pretend play with other children.

Even though the object is familiar to the child, their play still contains elements of exploration. As a child plays with a familiar object, they discover new possibilities. Frost et al. (2012) conceptualise a mutual relationship between play and exploration, since each can be conducive to the other. Furthermore, some play theorists and researchers classify exploration as one type of play among other play types (e.g., Chudacoff, 2007; Hughes, 2006; Klugman and Fasoli, 1995).

Free play and free choice: Educational play

> Can play in school ever be 'free'? Clearly the notion of free play, that is play which is intrinsically motivated, voluntary and free from externally imposed rules, is tempered in practice by the physical, conceptual and practical features of the school and the classroom setting. (Rogers, 2010: 162)

It has so long been assumed that children's play is free and self-initiated (Sylva et al., 1976: 244). Current play policies in England (e.g., DCSF, 2008), the United Nations Conventions on the Rights of the Child (UNCRC) (1989), as well as research on children's perspectives (e.g., Factor, 2009; King, 1979; Wing, 1995) show that self-initiation and free choice are important characteristics of play (Wood, 2014a: 4). However, this kind of play may be limited in practice in light of increasingly structured curricula and pedagogies, since free play is in tension with policy orientations towards harnessing play for educational purposes (i.e., educational play).

Wisneski and Reifel, (2012: 175) note that the place of play in early-childhood curricula has been characterised variously as 'the play-based curriculum, play-oriented curriculum, play as pedagogy, play as curriculum, and play-centred programmes.' These descriptors indicate the attempts to employ play for achieving developmental purposes and learning adult skills that are inscribed in the curriculum (Brooker, 2011; Fleer, 2010). That is, play is a vehicle for learning and teaching (Dockett, 2011; Fleer, 2010; Strandell, 2000). Furthermore, free play in early childhood education and settings is always controlled. Play is regulated by rules, is 'pedagogised', there is adult presence, unequal power relationships, and demands to start academic education earlier (Ailwood, 2003; Brooker, 2011; Dockett, 2011; Grieshaber and McArdle, 2010; Jones and Reynolds, 1992; Oers, 2013; Rogers, 2010; Wood, 2014).

The tendency towards 'pedagogisation' or 'standardisation' of play leaves pre-school professionals with contradictory understandings of play: free play is spontaneous and aimless, on one hand, and, on the other, is expected to meet educational and curriculum objectives

(Brooker, 2011; Jones and Reynolds, 1992; Rogers, 2010). Hence, this cultural belief that play is the basis for learning is problematic (Brooker, 2011: 157) for at least five reasons. First, the position of the adult and their participation in children's free play is open and often not clear (Jones and Reynolds, 1992; Oers, 2013). Teachers may feel that by letting children play and pursue their own adventures in play, they are losing control, resulting in chaos in the classroom (Jones and Reynolds, 1992: 37). In addition, play in educational settings is expected to meet curriculum objectives (Wood, 2014a: 11). Left to play freely, children may choose themes and topics that are not imagined and/or even un/known by the teacher (Jones and Reynolds, 1992: 37). For instance, in a study by Fleer (2010: 75) the teacher set the environment in such a way that children would learn particular scientific concepts. Instead, the children become engaged in play that revolved around their 'medicine and caring' understandings and concepts (ibid, 75). Therefore, as Rogers (2010: 154) argues, the relationship between play and pedagogy is unclear both in theory and practice.

Second, children normally in choosing play activity are heavily influenced by their friends (Rogers, 2010: 162). There is wide-based research which shows that young children prefer to play with their friends and normally tend to engage in activities on the basis that their friends are doing them (e.g., Corsaro, 1979; King, 1979; Wing, 1995). This may limit the variety of play activities that children may choose in their free play time.

Third, there are power relationships in children's activities. Wood (2014a: 16) suggests that free choice and free play relates to issues of agency and power and freedom to make decisions, which may benefit some children but not others. Free choice and free play put children into situations where they need to deal with power relations and negotiate contextual and relational problems (Ailwood, 2003; Wood, 2014). Some children may not be readily able to respond creatively to these problems (Wood, 2014a: 15). Without adult involvement, some children

cannot negotiate these problems in a creative way. In addition, when conflicts arise, children do not naturally engage in creative problem-solving (Grieshaber and McArdle, 2010: 7).

Fourth, free play and free choice are challenging in practice at a time when there is increasing pressure to standardise children's activities (Miller and Almon 2009; Wisneski, and Reifel, 2012). Hence, early childhood professionals increasingly experience pressure to teach formal skills and prepare children for school (Bodrova, 2008; Keating et al., 2000). As a result, time for free play may be limited, as teachers focus on teaching children skills that they need in school (Dockett and Meckley, 2007; Frost, 2007; Wisneski, and Reifel, 2012; Ryan and Grieshaber, 2005; Sherwood and Reifel, 2010). This puts teaching and thus work first and then if any time is left, children could play and/or their play may be postponed (Ailwood, 2003). Research on the effective provision of pre-school education (Sylva, et al., 2004) and policy (DfE, 2014) in England stresses the role of the practitioners in structuring children's play in that they advocate a balance between child-initiated and adult-led play. This may contribute further to limiting children's free play as this practice assumes that left on their own children may not learn when playing. (As a side note, there has been a similar tension that has been expressed in systems in different parts of the world. An area of confusion for those interested in policy-making in England is that a lot of the research is undertaken in England and other countries of the UK even if those other countries (Scotland, Wales and Northern Ireland) have their own educational systems.)

Fifth, play is rule-governed. Vygotsky (1966: 9) stresses that 'there is no such thing as play without rules'. In effect, in play, children become involved in an imaginary situation (e.g., being sisters, a mother), which dictates certain rules for actions and behaviours that fit with this situation (Vygotsky, 1966: 9). Therefore, children's freedom in play is but 'illusory' (Vygotsky, 1966: 10).

2.1.2.5. Play types: Not all Play is Alike

According to Wisneski and Reifel (2012: 179), 'all play is not alike. And while all play is not alike, our ways of viewing play are not alike, either'. A detailed typology of play has been presented by Hughes (2006: 35-60). It includes 16 types of play, which may be listed below as follows with each description paraphrased by myself:

1- Communication play: children's play space is noisy, with children being lively and making jokes, singing, laughing, etc. Their communication can also include the use of gestures to express their intentions and emotions.
2- Creative play: children self-control their play, inventing and creating different things and making new connections between things.
3- Deep play: children build up their confidence when they try out new things without fear.
4- Dramatic play: the child dramatizes things and events that they probably have not experienced. For instance, when children engage in a party, they perform certain actions, dress up, and take on new identities, within the physical or the imaginative frame of their play.
5- Exploratory play: the child engages in manipulating behaviours that help them gain information about unfamiliar things and discover new possibilities. In exploring new possibilities, the child widens their understanding of them.
6- Fantasy play: here, the child transforms real world's events in ways derived from the child's mind. For instance, a child playing a magic witch uses their magic stick to cook, bring something to life, etc.
7- Imaginative play: the children's play is free from real-life rules. In this type of play, the child uses objects such as farm animals, cars and dolls in ways that they draw from their minds (i.e., using their imagination).

8- Rough-and-tumble play: children undertake a variety of physical activities such as play-fighting, running and chasing.
9- Social-dramatic play: the child pretends to be a character that they like (e.g., playing the character of Peter Rabbit).
10- Social play: the child's play gets its themes, rules, and criteria of conduct from real life social experiences.
11- Symbolic play: the child uses material objects to symbolise or represent other things (e.g., using a stick as a sword).
12- Loco-motor play: the child is physically active and uses their own body to push, cycle, swing, etc.
13- Mastery play: the relationship between the child and the environment and its objects' properties helps them understand how to manipulate these objects. This type of play consists of repeating things for the sake of enjoying the skill (e.g., digging holes).
14- Object play: the child interacts with the objects and others in the environment in their play.
15- Role play: children explore different roles (e.g., play a doctor, a patient, a princess).
16- Recapitulative play: this includes exploring and reliving previous experiences.

Klugman and Fasoli (1995: 197) warn us that although these types of play are presented as discrete, they are not mutually exclusive, and may overlap in children's play events (e.g., using blocks in pretend play, sensory play such as sand and water play activities may involve solving problems).

2.1.2.6. Play Definition: A Different Perspective

At first glance, the word 'play' seems to be simple. Common-sense suggests that play is what children normally become involved in, and what they like. However, as discussed above, defining play is extremely problematic. This results not only from its very complex nature (i.e., a variety of play types) but also from its variety of cultural, individual, social, academic, and categorical resonances. Sheridan et al. (2011: 4) provide a useful beginning in this regard. They suggest that play is a behaviour, a process, and an approach to an activity, at the same time. But what kind of behaviour is play exactly? Is it the same or different from other kinds of behaviour? That is, what defines this kind of behaviour that makes it so special that it is warranted to be labelled as play? What kind of process is play? Is play as a process different from other processes (e.g., study, work, etc.)? Finally, what type of approach or attitude is play? Is this approach defined as having observable or mental characteristics? What about the perception of the child who holds that attitude?

Play is characterised by facial signs (e.g., smiley faces, laughing), enjoyment (i.e., the experience is interesting), and the feeling of being free from pressure and stress. The drive to become involved in play behaviour emerges from the intrinsic nature of play itself (i.e., what the child genuinely wants to do). The child takes play seriously (e.g., a child happily enjoying playing with cars would normally get upset when another child distracts them by taking the cars or some of them). Play involves pretence (e.g., pretend role play), its actions take a literal meaning which is different from its real life counterpart (e.g., play fighting). Play's end and focus is not a product but the enjoyment derived from the satisfaction the child gains from their engagement in the activity (Howard and Anderson, 2011; Sylva et al., 1976).

Howard and Anderson (2011) suggest that observing play activities might present a difficulty as to whether to prioritise some characteristics over others, or in deciding whether an activity

is indeed play, since some of the characteristics might not be present. The solution, they suggest, might be to adopt the child's perspective in terms of what they regard as play. 'It seems that to understand play, we need to find out what players themselves think about the nature of their activities….., it is not enough for activities to be like play. We also need to understand what makes children approach activities in a playful way.' (Howard and Anderson, 2011: 7). As is evident in this quote, the internal features of play that children experience when playing have to be considered so that the pitfalls associated with adult definitions may be avoided. That is, it is important to consider children's thoughts about why they see play as important.

In addition, the complexity surrounding play, as discussed above, has motivated some researchers to focus on defining play as an approach or a disposition to an activity rather than on the basis of observable behaviours that may or may not necessarily reflect the intentions and meanings of the playing child (e.g., Bundy, 1992; Howard and McInnes, 2013; Thomas et al., 2006). According to Thomas, et al. (2006: 52 emphasis added), play as an approach to an activity means 'playfulness'. Playfulness can only be understood by taking the perspective of the players (ibid, 53). In addition, Howard and Mclnnes (2013: 40) in discussing the problem of defining play argue for considering playfulness and for the necessity of differentiating play from both what is not play and exploration. Exploration is a serious attempt on the part of children to discover the properties of a new object, whereas play is about using this object in new contexts (i.e., different possibilities) in a relaxed way. However, as discussed above, this distinction between play and exploration is not helpful either, since there is no clear-cut break between one and the other, at the least in the mind of the youngster. The youngster conducts their actions as play regardless whether the end point of it is play or exploration. Exploration and play can be conducive to each other (Frost, et al., 2011). Other researchers do not try to confine the construct of play to one definition. For instance, Reifel (2014: 7), depending on the

audience, 'use[s] the word *play* differently'. Reifel (2014: 7 emphasis added) further explains that:

> Undergraduates are learning that play supports young children's learning in content areas. Teachers seek scholarly explanations of play to support their practices. Graduate students and scholars try to craft new knowledge that relates to scholarly definitions of play. Same word; different meanings.

Further, however play 'is elusive in terms of definition, it is, at the very least, a key component of the child's early life, which is why denying play to children can amount to abuse of their rights.' (Moyles, 2012: 2).

2.1.3. Child-centredness

As Stephen (2010: 18) points out, the 'child-centred' pedagogical provision emphasises that children should have the freedom to select whatever activities they like to do and which children to play with (ibid, 18). This means 'following the children's interests' (Stephen, 2012: 243). According to Stephen (2012: 234), this approach to pedagogical practice in English early-years settings was rooted in the work of educational thinkers (e.g., Isaacs (1932) and Montessori (1966)) who stressed the importance of considering the needs and interests of the child. The influence of these educators has been translated into the practice of providing an 'environment' that gives the children the opportunity to explore and work independently (ibid 234). The other major idea in thinking about early-years education stressed the role of play as a means for children's learning (Stephen, 2010: 18). This importance of play, as Stephen argued (2012: 235), was supported in the early-years practitioners' practice and early-years policies. For instance, notwithstanding the comparison with more progressive educational systems, the EYFS suggests that '[P]lay is essential for children's development, building their confidence as they learn to explore, to think about problems, and relate to others' (DfE, 2012: 6).

O'Neill and McMahon (2005: 27) argue that the historical roots of child-centredness lie in Froebel's notion that teachers are advised not to 'interfere with this process of maturation, but act as a guide'. This notion is connected to the idea of 'readiness', which implies that children are capable of taking an active part in accordance with their physical and intellectual development (ibid, 27).

Harmelen (1998: 2), in turn, notes that the child-centred approach came as a reaction to the pre-dominance of behaviourism. Behaviourist theory is centred on the essential idea of a 'reaction being made to particular stimulus' (Pritchard, 2009: 5). As an approach for learning, behaviourism focuses on behaviours that can be observed, and disregards any 'mental activity' [or takes the mind as a 'black box'] (Pritchard, 2009: 6). Learning from this point of view is defined as 'the acquisition of a new behaviour' (ibid, 6), which is brought about by a stimulus and reinforced or discouraged through providing feedback (Gray and MacBlain, 2015: 56). This view of learning located the child in a 'passive position' (Whitebread, 1996: 2), since it did not acknowledge their role in constructing their own learning. Such a view was particularly popular in the mid to later part of the twentieth century, but in one sense was long established within common sense conceptions of learning.

The behaviourist view was challenged particularly in the 1960's in the UK. Plowden (1967) argued that children often have an inborn capacity and curiosity to explore new things by themselves. This idea is expressed in the following statement:

> The child appears to have a strong drive, which shows itself at a very early age, towards activity and the exploration of the environment. He also displays curiosity especially about novel and unexpected features of his experience. As far as can be judged, this behaviour is autonomous since it occurs when there is no obvious external motivation such as hunger. (Plowden Report, 1967: 17)

At the heart of child-centred education lies the child as an individual with specific interests, preferences, characteristics, abilities, and educational needs. Consequently, in terms of their learning, self-chosen and self-directed activities can be considered as a prerequisite for children's education (Kwon, 2002: 6). In the pedagogical practice of teachers, child-centredness affirms the primacy of the child's interests and needs over the transmission of knowledge to children, and identifies the former as the primary source of the pedagogical practice, and its planning and implementation (Murphy, 2006: 114). That is, all pedagogical activities appear to centre round the child (Soler and Miller, 2003: 59). This is in a sharp contrast to the traditional role of the teacher as an 'instructor' (Kwon, 2002: 8), who leads children's learning and passes on knowledge and facts to them according to pre-specified aims. In a child-centred approach, the teacher assumes a new role that of facilitator (Soler and Miller, 2003: 59), guide and arranger of the educational environment (Kwon, 2002: 8). That is, the teacher sets up the learning environment in a way that supports children in their own discovery. In such an environment, children have greater control over their learning and its direction. Such an approach often draws on Dewey as suggesting that learners should approach their learning in an active way. This learning is not a 'one-way' process from the teacher to the learner (Soler and Miller, 2003: 59), albeit Dewey rejected the 'naïve' progressive view that all teachers needed to do was to leave the learner alone. In Dewey's child-centred approach, a teacher was expected to organise learning activities.

The behaviourist versus more cognitive child-centred debate has been played out over time. In educational theory, it is assumed that early childhood pedagogical practice should be fundamentally based on child-centred education, and this is well established in both early-years teachers' practices and curricula. In England, teachers are expected to be more structured in their teaching (see the EYFS) but hold on to less structured conceptions of teaching, and this has been seen as making the following assumptions (Kwon, 2002: 1):

1- The curriculum starts with children's interests and needs rather than being predetermined by the teacher.
2- Free play, which is characterised by children directing, using, choosing (not only whatever resources but also whom to play with) and altering their activities in ways corresponding to their preferences and interests.
3- First-hand experience such as giving the children the opportunity to find out about things and learn about them for themselves.
4- Learning should be integrated under flexible themes in which play provides a context for learning.

In their extensive review of the literature on contemporary early childhood, Chung and Walsh (2000: 216) found that the term 'child-centred' had more than 40 meanings. These meanings ranged from a concern for learning to be aligned with children's interests, to giving learners opportunities for making decisions pertinent to their learning, to a general awareness of stages of development, and potential (ibid: 216). In addition, in their historical analysis of the literature, Chung and Walsh (2000: 229) identified three main conceptions of the child-centred construct. These conceptions are: Froebel's notion, which puts the child at the centre of the world, the developmentalist notion which suggests that the child forms the 'centre of schooling', and the progressive one, which supports the idea of giving children the opportunity to direct and shape their learning. This wide range of meanings creates a challenge for practice, which has been aptly confirmed by Stephen (2010: 18), who contends that the existence of a great number of interpretations of the same concept (i.e. child-centredness) makes the viability of the concept problematic.

Ambiguity extends to the idea of the definition of play, and whether play is free or structured, as will be discussed below. Mclnnes et al. (2011), in a study investigating differences in practitioners' understanding of play and how this influences pedagogy and children's

perceptions of play in two English different foundation-stage settings, argue that not all play is (or should be) child-led. Similarly, recent evidence from the Effective Provision of Pre-school Education (EPPE) shows that educational settings that were effective in supporting children's social, emotional, and dispositional development, offered a balance between child-initiated and adult-initiated activities (Sylva et al., 2004; Siraj-Blatchford and Sylva, 2004). However, there are commentators (e.g., Hall, 1991) who argue against any structure in play: '[P]lay should never be made a slave to a teacher's instructional desires. If play ceases to be a pleasure, it ceases to be play.' (Hall, 1991: 13).

2.1.4. Post-Vygotskians' Perspectives on Play and its Role in Learning and Development

Post-Vygotskian is a loose term and often used to describe thinkers including Leont'ev and Elkonin (see Bodrova and Leong, 2004). Their main contribution has been to examine and elaborate the main concepts of Vygotsky's theory on learning and development. In particular, they looked at how play might be the leading activity of young children by exploring how and which features of play create zones of proximal development (ZPD). Hence, post-Vygotskians have enriched Vygotsky's legacy on children's development and learning and the role of play by the 'amplification' of the concepts and theories put forward in his cultural-historical theory, based on the fact that Vygotsky's writings present ideas rather than a well-developed theory (Bodrova and Leong, 2004: 156-174).

With regards to early childhood education, according to Bodrova and Leong (1998: 115), post-Vygotskians focus mainly on the role of play in the development of self-regulation, which is regarded as 'the major accomplishment of early childhood.' In doing this, they do not ignore the role of play in the development of symbolic thinking, problem-solving, and affective development, but they do regard self-regulation as the major accomplishment as mentioned

above. It should be noted that as Vygotsky did, these post-Vygotskians focused on a particular form of play, make-believe play.

2.1.4.1. Play as a Leading Activity

Vygotsky (1978:102) contends that:

> In play a child is always above his average age, above his daily behaviour; in play it is as though he were a head taller than himself. As in the focus of a magnifying glass, play contains all developmental tendencies in a condensed form; in play it is as though the child were trying to jump above the level of his normal behaviour.

As with Vygotsky (1978), Leont'ev and Elkonin considered play as young children's 'leading activity' at the pre-school age (Bodrova and Leong, 1998: 116). This means that play provides children with the basis for their holistic development including cognitive and social 'accomplishments', as well as the 'foundations' for future processes needed in school (Bodrova and Leong, 1998: 116). Play is viewed as important as instruction is for young children's development and learning, but it contributes to children's development differently (Bodrova and Leong, 1998: 116). Play assists growth of mental skills (e.g., planning, self-regulation, voluntary behaviours, as will be discussed below), while instruction facilitates learning about scientific concepts and key subject knowledge content (Bodrova and Leong, 1998: 116). Therefore, both play and instruction by adults/teachers provide children with a ZPD. Post-Vygotskians suggested that in order for play to be a leading activity in children's development it has to have certain features as discussed below.

Mature Play

The term 'mature play' was originally put forward by Elkonin (2005a; 2005b) to describe how play can lead children's development. Elkonin (2005a) focused on the investigation of role

play. He explored how this kind of play develops, the forms it takes and its psychological structure, development, significance and decline in the lives of young children (Elkonin, 2005a: 32). Role play is viewed as social in origin and nature, since it relates to the adult world in that children's pretend roles and ideas are derived from their experiences in their family and wider social environments. The 'developed' or 'elaborated' form of role playing appears in the middle of pre-school years (Elkonin, 2005a: 35). Hence, Elkonin (2005a) went from mere description of the apparent features of role play when children fantasise their actions, into delving deeper into the nature of role play illuminating its structure and genesis (Elkonin, 2005a: 37). Roles that children take on in their play, along with actions associated with them, are the central aspect that determine all the other aspects of play such as objects, interactions and relationships among children (Elkonin, 2005a: 39-40).

Mature play is a type of play known as make-believe play, and contains three main elements: an imaginary situation, rules that govern actions and behaviours, and roles (Bodrova and Leong, 1998: 120). Bodrova and Leong (1998: 119) contend that not all types of play support aspects of self-regulation development such as voluntary deliberate behaviours, planning, purposefulness, and control over oneself/others. 'Less mature' play, a form of play that does not support the development of self-regulation, can be observed in nursery settings (Bodrova and Leong, 1998: 120). As a cultural activity, play is greatly influenced by the context in which it occurs (Bodrova and Leong, 1998: 120). By exploring the nature of mature play below, the nature of less mature play may be appreciated.

Vygotsky and Elkonin and their students identified several components of mature play. In what follows, I discuss four characteristics of mature play as discussed by Bodrova and Leong (1998: 120). The four headers are taken from Bodrova and Leong (1998: 120), but the explanations are provided by me:

1- The creation of an imaginary situation: here, children create a situation in which objects take on different meanings from their real life ones, and in which children assume roles of other people. In the imaginary situation, objects become props for elaborated play that is not limited to their real properties. For instance, in my research, children used a blue blanket as the sea, on which blocks were used to represent caves and stones into which imaginary 'fish' could hide and escape from the 'hungry shark'.
2- Clearly defined rules and roles: children assume new roles, and these are governed by rules that specify how children act and interact. Children negotiate these rules before they start playing, and follow them throughout the play episode. Pretend play may include more than one theme, and children may flexibly develop their roles as new ideas develop and are shared among the children. For instance, in my research when children played 'Peter Rabbit', they negotiated their roles (I am Peter, I am Lilly, Mr. McGregor, and so on), and if two children wanted to be Lilly, one of them decided that 'You are Lilly and I am Lilly'. They recreated the scenario by agreeing both could be Lilly.
3- Extensive use of language: children use language to label the objects, assigning them new functions and meanings, and also to negotiate, explain and plan their roles, actions and interactions. In acting their pretend roles, children modify their vocabulary and their voices conforming to the rules of the play scenario, for example, pretending to be a baby, and crying to indicate they are hungry.
4- Duration: mature forms of play last over an expanded period of time. Children start their play from where they left off, planning, incorporating new props, explaining and negotiating their roles.

All of these characteristics constitute 'mature' play that contributes to young children's development of self-regulation. It does so in many ways. First, children, by subscribing to one particular role, restrict their actions, their words, behaviours, expressions, voices, relationships

with others, and interactions in such a way that these fit the rules of conduct of that particular role. This reminds us that Vygotsky's notion of play is not free as it is governed by rules. Therefore, children practise self-regulation by observing rules of play and abstaining from actions that violate them. As Bodrova and Leong (1998: 117) contend, play creates 'a uniquely motivating context in which children can develop the ability to self-regulate their behaviour through imaginary situations, roles and rules.' This was in line with Vygotsky's view (1976: 548) of play as providing the context for children to develop planning, purposeful, and self-regulatory behaviours:

> in play he adopts the line of least resistance, i.e. he does what he feels like most because play is connected with pleasure. At the same time he learns to follow the line of greatest resistance, for by subordinating themselves to rules children renounce what they want since subjection to rule and renunciation of spontaneous impulsive action constitute the path to maximum pleasure in play.

Second, play provides children with 'mechanisms' or means of self-regulation through 'intersubjective' and 'intra-subjective' levels. Vygotsky (1976) maintained that every psychological function appears twice in the course of development: on the intersubjective/shared level between people and then on the intra-subjective level within the individual. In pretend play, children experience other-control (i.e., '*other-regulation'*) first by abiding by the rules and commands of other children joining in the play scenario, and by regulating the actions of other children (Bodrova and Leong, 1998: 117, emphasis added). Gradually, children's actions progress towards controlling their own actions (i.e., self-regulation) as they regulate and plan the actions of the character they adopt:

> From this perspective, acting out some role in a dramatic play can be seen as a transitional form of quasi-intersubjectivity when a child can regulate his/her own actions while pretending to regulate somebody else's—the pretend persona. (Bodrova and Leong, 1998: 117)

For instance, when a child pretends to be a princess, she takes some measure of action to ensure that she is a 'princess'. She might wear a beautiful pinkie dress and red shoes, put on a crown, and command her sister. She may sit on a princess's chair in her big castle, and prepare for the 'best' wedding party 'ever'. At once, she controls her own actions in accordance to the role of a princess, and regulates the princess she is pretending to be.

Some post-Vygotskians argue for teaching young children how to play or as Bodrova et al. (2013: 116) put it, 'leading children in their leading activity.' However, leading play should not change the character of play into a controlled activity or a 'lesson plan' (ibid). Instead, leading play should be an invitation for teachers to enrich children's play so that all children can or are enabled to develop 'mature play'. It is noted that nursery-aged children and even children aged 6 and 7 years-old show engagement in 'immature' levels of play that are characteristic of children of younger age (ibid, 117). This phenomenon is displayed in many ways: children tend to engage in stereotypical repetitive play scenarios which do not evolve into proper make-believe play. This type of play features a limited range of themes and roles for children to get involved in. One possible reason for immature play is the replacement of traditional tools with real props. A second is that professionals in early-childhood settings tend to set up the environment, and let children play on their own, without the support of the practitioner (Bodrova et al., 2013: 117). For both these reasons play has been underdeveloped, as Bodrova et al. (2013: 117) remark:

> we conclude that present-day play at this low level can no longer foster skill development in the child's zone of proximal development. Today's player may no longer grow a head taller.

2.1.5. The Role of the Early Years Teacher and Their Conception of That Role

A key consideration within every educational system is the degree of autonomy and flexibility that teachers have. Even when curricula are increasingly prescribed, teaching remains a

personal enterprise, in which teachers bring their own varying perceptions and understandings to their own pedagogical practices. As such it is important to consider how teachers of young children consider their role and the kinds of values they bring to their work. For example, McInnes (2002), in a case study of four different types of settings (nursery school, nursery class and reception class in an infant school, and reception class in a primary school in England) found that the emphasis placed on literacy and language varied across these settings according to teachers' views on whether to introduce children to the National Literacy Curriculum. While the reception class in the primary school integrated the literacy strategy into its curriculum, teachers in the other three settings considered this to be inappropriate for four-year-olds. Teachers in the other settings tended to focus on play activities rather than placing a formal emphasis on teaching literacy (ibid). This study highlights a key idea which is that policy and practice are different things and that policies are mediated always by teachers (cf. Braun et al., 2010).

It seems that early-years teachers are resistant to more teacher-led approaches, and are sometimes confused about their pedagogic role in the early-years setting. As McInnes (2011) and others (e.g. Stephen and Plowman, 2007; Stephen, 2010) argue, teachers are often not confident in carrying out the role of structuring learning. Perhaps one reason is that they feel they should not, or have been trained not to, intervene. Furthermore, Stephen (2010) suggests that teachers do not often like talking about pedagogy as they see it as formal instruction.

It is interesting in this respect to consider early-years teachers' beliefs about learning in more detail. In a study designed to explore early-years teachers' beliefs and understandings of quality and success in their work, Alexander (2010) tried to build up a picture of how practitioners would describe a successful child, and in particular, what attributes they would ascribe to them in a context of a unified curriculum put in place by EYFS. Observations, focused discussions,

and interviews with 65 practitioners in 18 English settings, including a private nursery, children's centres, schools and nursery schools, revealed that the context of the settings in which the practitioners work, as well as their professional identities, influenced their perceptions of quality and how success could be described in relation to children in the setting. Alexander (2010) found that teachers put a high priority on happiness. All of the practitioners considered the successful child to be 'a happy child', as well as having other traits (e.g. confidence, having good relations with others) (ibid, 110). However, while practitioners working in children's centres tended to describe the successful and happy child in terms of independence, confidence, and perseverance in completing the task that they choose in their own way, practitioners in schools viewed the successful and happy child as being aware of the governing rules in the setting, behaving in accordance to these rules, and being aware of their actions. The former practitioners stressed the involvement and activity of the children in the task whilst the latter emphasised obedience of, or alignment with, school rules (ibid, 111). These varied interpretations of what constitutes a successful child among practitioners in different settings may bring the unified criteria envisaged in the EYFS curriculum into question.

Another important point is that the way in which teachers perceive their role significantly affects how they intervene with children. McInnes et al (2011) conducted a study investigating differences in practitioners' understanding of play and how this influenced pedagogy and children's perceptions of play in two English different foundation-stage settings. This study indicated that the adult role was a distinguishing factor in whether an activity involved play and non-play for children in the setting. In the setting where practitioners had a balanced approach, children had opportunities to control and choose from activities, but practitioners also participated in children's play, thereby, co-constructing play with children. In the other setting, teachers perceived their role as making children's play purposeful, enhancing their play

and modelling it, but not participating in it. These differences in adults' roles and in their presence in children's play may be seen as providing the 'cue' for describing activities as play or non-play (ibid, 130). This study also indicated that early-years teachers' pedagogical strategies (e.g. use of open/closed questions, initiating interaction, opportunities for choice and the language they used during the activities) were found to shape and influence children's understanding of play (ibid). For instance, in the setting where children were given fewer opportunities to make choices between activities and where their activities were controlled by the practitioner, the presence of the practitioner may be perceived by children as signalling 'non-play'.

It seems that early-years teachers' pedagogical practices are influenced by a variety of factors, such as the curriculum, their interpretations of it, and their own beliefs about their role and pedagogy. Overall, they are more inclined to adopt a more child-centred pedagogy in their practice, as discussed earlier.

2.1.6. The Distinctive Nature of Early Years Education

The most distinctive aspect of early-years education pertains to the key role of play in young children's education and development. According to Froebel, play is seen as 'the work of the child', and an element of 'the educational process' (Kwon, 2002: 4). Therefore, early-years practitioners' pedagogic work ought to involve or centre on facilitating play and learning (Mclnnes et al., 2011). However, as Pramling-Samuelsson and Carlsson point out (2008: 623), although young children generally prefer to play, educational systems tend to separate out activities that pertain to learning from those to playing in an unhelpful way.

This idea of there being such a thing as a distinctive early-years education creates a further discontinuity that is felt when children move to the Year 1 class, at the beginning of the primary

school. While reception class teachers are expected to work within a 'play-based, learner-centred curriculum', teachers of Year 1 children are expected to follow a method that is prescriptive and focused on the teacher in teaching these children, resulting in children's experiences being different and incoherent (Fisher, 2009: 133).

A further expression of the distinctive nature of early-years education is that early-years education and care is inseparably connected to objects such as toys (Jones et al., 2012: 49). In their study, Jones et al. (2012) considered nursery children's relations with objects, which are brought from the home to the nursery setting. The findings of this study showed that young children develop close affection for toys and personal belongings. The researchers gave examples of two children who had particular relationships with their toys brought from home. These toys served different distinctive functions to help those two children to get on in the setting. The 'Brown Dog' helped a three-year-old girl to manage her separation from her parents, and the soft toy helped a boy to be included in the class by distracting him from undesirable forms of behaviours (e.g., antisocial and disruptive behaviour in the classroom that made him become isolated from his peers). With this in mind, schools often encourage, or at least understand, that young children will take these objects into school. However, there is also a concern for whether objects are always appropriate and teachers may put them in store (e.g. Superheroes which are perceived to convey negative values, such as stereotypical muslin), and thus they may not be played with in the classroom (ibid, 53). Some objects have the potential to disturb the setting (e.g. toys which are costly and would carry consequences if lost), and might be viewed as 'agitators' that do not fit in the early-years culture (ibid). Hence, Jones et al. (2012) feel that objects are seen in terms of affection and infection with regards to their conceived potential, positive or otherwise, for young children in the early-years setting.

2.1.7. Summary

This brief overview of early-years education and pedagogy has suggested that there is broad agreement concerning the importance of play in children's learning and development in the context of the early-years setting. This agreement also extends to the child-centred nature of early-years education. However, there are continuing tensions both in respect to how the prescribed curriculum should be translated into practice and the degree to which teachers should intervene and structure children's activities and play. In addition, this section reviewed current debates and Post-Vygotskyans's insights about play and highlights that the ambiguity of play is caused by many reasons including many perspectives on play, many types of play, and different contexts impose different perceptions.

2.2. ICT and Early Childhood Education

This section now serves to outline nursery-aged children's experiences with ICT in early childhood education, with special attention to their experiences in both the wider contexts of their families and the early-years setting. Following this, it discusses the empirical studies that have explored ICT use in the context of early-years education, identifying gaps within the literature. In this way, the review will set out the key issues for my research. This review of the relevant literature is divided into the following points:

- The controversy over the appropriateness of technology for young children
- Children's experiences of ICT in the early years setting
- Their ICT experiences at home
- ICT-based pedagogical practices of early-years teachers

In my study, ICT is not limited to desktop computers and refers to a variety of information and communications technologies (e.g., mobile phones, remote controlled devices, cameras, etc.)

(Siraj-Blatchford and Siraj-Blatchford, 2003: 6). The British Education Communications Technology Agency (Becta) and McPake et al. (2005: 4) adopted a loose definition to ICT to include, in addition to the computer, toy mobile phones, laptops, cash registers, activity centres, musical keyboards, programmable and radio-controlled toys, tape recorders, microwaves, barcode readers, as well as everyday items such as remote-control devices, photocopiers, telephones, fax machines and televisions. The National Association for the Education of Young Children (NAEYC), in its joint position statement (2012), also adopts a wide definition of technological tools that encompass, in addition to the variety of the tools mentioned by McPake et al. (2005), IWB as well as older analogue devices such as projectors, and microscopes. In my study, I adopted these broad definitions of ICT so that children's subjective experiences of the variety of ICT tools in their many forms could be explored.

2.2.1. Role of ICT in Early Childhood Education

There have been continuous debates about the suitability of new technology for young children, their development, its potential and impact on their play. These debates have at times been polarised. On the one hand, there are critics who view technology as detrimental to young children and their development (e.g., Alliance for Childhood, 2000; Barnes and Hill, 1983; Cuffaro, 1984; Elkind, 1985; 2004; Campaign For a Commercial-Free Childhood et al., 2012; Elkind, 2007; Healy, 1998; House 2012; Howard-Jones, 2011; Monke, 2007; Palmer, 2006). Concerns about technology are mainly about the nature of the experience resulting from children's encounters with it and its potential negative influence on their development and health. On the other hand, there are commentators and researchers who support the introduction of the new technology to children, acknowledging its potential to support their learning and development (e.g., Clements, 2002; Clements et al., 1993; Haugland, 2000b; O'Hara, 2004;

Prensky, 2001; Siraj-Blatchford, 2010; Siraj-Blatchford and Siraj-Blatchford, 2003; Wheeler, 2000).

The Alliance for Childhood (Cords and Miller, 2000) argue that computer use by young children can bring about physical, social, emotional, and intellectual developmental risks (e.g., repetitive strain injuries, isolation, obesity, repressing children's intellectual capacities). They regard computers as promoting unhealthy life styles (e.g., sedentary lives), which, they argue, is detrimental to their developing bodies and senses (ibid, 95). Hence, they call for an 'immediate moratorium' on any future computer introduction in early childhood settings and primary schools, with special needs students being an exception (ibid, 98). In another report, '*Towards new literacy*' (2004), the Alliance for Childhood insist that they are still persuaded that for young children, the harmful effects of new technologies' introduction outperform its advantages, and that rare evidence for the long-term positive results of this introduction to children is available (ibid, 2).

For some critics, early use of the computer by young children hinders their intellectual development (Barnes and Hill, 1983; Cuffaro, 1984; Healy, 2000; 1998). It positions the child as almost a passive watcher (Barnes and Hill, 1983; Cuffaro, 1984), so that the child is not experiencing first-hand the three-dimensional world (Barnes and Hill, 1983: 13). The computer is symbolic, and the content of the experience (i.e., software) presented on its screen is of an abstract nature (Barnes and Hill, 1983; Cuffaro, 1984) and may be beyond the child's ability to comprehend. Hence, pre-school children should not be introduced to the computer before they reach more mature levels of cognitive development (Barnes and Hill, 1983; Cuffaro, 1984). Only then will they become able to control and deal with the symbols at the computer (Barnes and Hill, 1983; Cuffaro, 1984). However, Clements et al. (1993: 56 emphasis in original) state as follows '[W]hat is "concrete" to the child may have more to do with what is

meaningful and *manipulable* than with physical characteristics.' To disregard the child's computing activity on the basis of lacking symbolic competence, according to Clements (2002: 160), is to ignore the fact that children are normally involved in symbolic activities. For instance, even very young children, when they play, use their toys or other play items to represent imaginary things (e.g., a dog, use gestures to communicate) (ibid, 160). Furthermore, open-ended programmes such as problem-solving and Lego offer flexibility and control to the child (Clements et al., 1993: 56).

In the face of these concerns and dangers that children are believed to encounter as a result of their use of ICT resources, Plowman et al. (2010) conducted a study of home use of ICT by three-to-four year old children. They argued that families involved in their study appeared to be more conscious about the negative arguments about technology in early childhood education than positive ones (ibid). Nonetheless, these families considered that their children were safe from risk as they supervised their children's use of technologies and considered that moderate use would help in respect to their development (ibid). As with the study conducted by Marsh et al. (2005), all children included in the Plowman et al. study were reported to be engaging in a wide range of technology-free activities such as playing outside (ibid). Plowman et al. concluded that in the face of increased concern about the technologisation of young children's lives, they had not found evidence that children's lives 'could be described as toxic or that family life was being undermined' (ibid, 71).

The Alliance for Childhood (Cordes and Miller, 2000) and Healy (1998) seem to have a deterministic and pessimistic view about the introduction of computers to children just like others (e.g., Wheeler, 2000) who think the mere introduction of computers to schools should bring about different pedagogical changes in the classroom. The technology itself is, arguably, neither inherently positive nor negative (Falbel, 1991) and, in a more balanced view, the

NAEYC (2012) advocated an integrated and balanced approach that required careful use of technology based on its appropriateness to children, one that took into account the importance of other activities in their lives. For instance, it suggests that '[A]s with many things, technology and media should be used in moderation and to enhance, and be integrated into, classroom experiences, not to replace essential activities, experiences, and materials' (ibid, 7). This may serve to avoid any usage of technology and interactive media that is deemed to be harmful to the children.

2.2.1.1. ICT and Pedagogy

In practice, the value of ICT is heavily dependent on the way in which it is utilised (Kumtepe, 2006: 56). According to Morrison (2009), teachers need to take into account many factors when using computers or any other technology. These range from meeting children's individual needs, to helping children develop socially, encouraging meaningful learning, and integrating technology into the early-childhood curriculum (ibid, 384-386). Teachers' focus should be on utilising technology to support their pedagogical practices in the classroom, instead of solely 'learning about' it (Gimbert and Cristol, 2004: 208). In this way, early-years teachers can model to children how to use new technologies purposively (Kabaday, 2006).

Another important issue in the pedagogical integration of technology pertains to professional judgments about the selection of appropriate software. Professional judgment is required 'to determine if a specific use of technology is age appropriate, individually appropriate, and culturally appropriate.' (NAEYC, 1996: 11) While technology is a very broad concept, some programmes are written with exploratory principles in mind, such as Logo, while others are written with very behaviourist principles in mind, for example, drill and practice programmes. The earliest versions of what is called educational software were seen by some as dominated by the principles of crude behaviourism (e.g., programed learning) (Chandler, 1984: 1). The

educational significance of this software for children's learning was questioned, and subject to many criticisms. Chandler (1984: 6), for example, saw the drill and practice programmes as leading to a process of learning which became a 'passive, atomistic and convergent activity'.

There have been calls for open-ended programmes that are developmentally appropriate for children (Clements et al., 1993; NAEYC, 1996; Shade and Watson, 1990). NAEYC (1996: 12), in its position statement on technology and young children, described developmentally appropriate software as involving children in solving problems, working co-operatively and communicating, controlling their learning and its pace, playing creatively, and experimenting and repeating the activity as they wish. In similar vein, Shade and Watson (1990: 385) called for discovery-oriented, child-in-control software that included elements of the characteristics of intrinsic motivation, such as challenge, curiosity, control and fantasy. For instance, an open-ended programme such as Logo was seen as flexible, positioning children in control, promoting co-operation and discussion, and fostering capacities of reasoning, creativity and problem-solving (Clements et al., 1993: 57-60).

2.2.1.2. Expectations: The Same or Different Pedagogical Practice

Regarding the educationally pedagogical usage of computers in educational provision for children, there are two often cited pedagogical positions (Higgins and Moseley, 2001: 204). The first seeks to assimilate ICT within an existing, long-established framework of instructional practices in schools. This approach is sometimes called 'retrospective pedagogies for ICT' (ibid, 204). The second contends that ICT is revolutionary, changing the educational process into the classroom. Theoretically, it has been assumed that computers could bring about a change in the educational process of teaching and learning. This shift would be from the traditional process where the focus is on the teacher, curriculum-based planning, and learning by memorisation, to a more open-ended and child-centred approach, empowering learners to

have more responsibility over their learning (Drenoyianni and Selwood, 1998; Hawkridge, 1990).In addition, stakeholders (e.g., policymakers) have hoped that by equipping schools with different ICT resources, and wiring them to the Internet, an increased use of these items for educational purposes will occur (Cuban et al., 2001). These assumptions about ICT in relation to changing the educational profession could be described as a 'promotional view of ICT' (Cartwright and Hammond, 2007).

In early-years teaching, it seems that the use of ICT resources is subsumed within traditional pedagogy. As Tyack and Cuban (1995) famously argued, ICT, even when access issues are addressed, does not fit easily into the grammar of the school.

The complex challenge of integrating ICT is evidenced in a study conducted by Cartwright and Hammond (2007). This was a case of a school which was seen locally as making a good use of ICT. It was found that teachers often adapted ICT resources to 'best fit' the different circumstances and demands placed on them in the school (e.g., the varying needs of students, of teachers, of curriculum and these of the school). This resulted in varying engagement with ICT by each individual teacher. Their pedagogical practices with regard to ICT could be aptly described as 'fitting ICT in' within these competing requirements. Hence, Cartwright and Hammond (2007) contend that any discussion of effective pedagogical practices of ICT needed to be grounded in an understanding of everyday life of the teachers (ibid). This point implies that the practicalities of the demands of the teaching context are very influential in shaping teachers' ICT pedagogical practice.

An older but nonetheless relevant study was conducted by Drenoyianni and Selwood (1998). A particularly interesting finding of this study was that the use made of ICT in the classroom, including teachers' role, level of computer integration, purposes of its use, and identifying children's prior skills, was found to be influenced by teachers' beliefs in relation to pedagogy

and learning. For example, teachers who advocated the vocational and social rationale for computer's use considered ICT skills to be the most important to be achieved by their pupils, and as a result, these pupils were left to develop these skills on their own during computer activities (ibid, 94). In contrast, teachers endorsing a pedagogical approach identified children's ICT skills before the use of computers in the lesson, and assisted children in their activities on the computer, with this help being administrated according to children's 'individual needs' (ibid, 95). This study indicated that teachers have a set of understandings, beliefs and assumptions about ICT, and that these are likely to influence their use of ICT in their teaching and learning. It also suggested that what they believe about ICT might be unhelpful in developing a pedagogy.

Higgins and Moseley (2001) explored teachers' ICT usage. Their sample consisted of 75 teachers of reception, Y2, and Y4 classes. Teachers of pupils of an older age preferred 'formal' approaches to teaching while teachers of reception class expressed preference for less formally pedagogical approaches to teaching (ibid, 199). This group of reception class teachers tended to use computers as an additional option, not to support specific aspects of children's learning. Rather, it was used as an extra for children completing a task early, or as a 'reward' to encourage them during a lesson (ibid, 200). These teachers also perceived learning of how to use the computer as a goal in its own right (ibid 200). The researchers concluded that the effective use of computers in the classroom should be planned across the different areas of the curriculum (ibid 201). In short, ICT has not revolutionised teachers' pedagogical practices, and there is a multiplicity of constraints on practice.

2.2.2. ICT and Pedagogy in the Early Years Setting

An integrated approach to using ICT in the early-years setting has been advocated (Siraj-Blatchford and Siraj-Blatchford, 2003; NAYEC, 1996; O'Hara, 2004). Here, ICT is not so

much seen as a replacement for traditional early-years practices and activities, but as an embedded part of teaching and learning. In addressing this issue, O'Hara (2004: 13) affirms that 'ICT is not a substitute of tried and tested activities and first-hand experiences but offers a means of extending and enhancing those experiences and activities'. Technology on its own, thus, only represents a latent opportunity that needs to be exploited in the teacher's pedagogical practices so as to benefit children's learning and activities.

With regard to the official documentation on ICT in the early-years settings, at the time of the research, the Statutory Framework for the EYFS (DFE, 2012: 5) required teachers and practitioners to help young children to know and make sense of their worlds and communities by providing them with 'opportunities to explore, observe and find out about people, places, technology and the environment'. Early-years teachers, within the 'expressive arts and design' area, were also advised to encourage children to express themselves, and represent their thoughts, ideas, and feelings through different means and activities including technology (ibid, 5). Moreover, this Statutory Framework, within the early learning goals for 'understanding the world', acknowledged children's awareness of a variety of technologies and the various purposes they are used for (ibid, 9). This document may provide early-years teachers with a general framework to guide and support their planning and use of ICT in the classroom.

Enshrined in early-years practitioners' and teachers' practices are a play-based pedagogy, a lightly prescriptive curriculum, and child-centred educational planning (Plowman et al., 2010: 98), as discussed earlier. Marsh et al. (2005) explored early-years practitioners' attitudes to new technologies and their use of them in the communications, language and literacy curriculum in the EYFS. In this study a total of 524 practitioners who worked in 104 English early-years settings were surveyed. Findings revealed that although practitioners had positive attitudes towards popular culture, media, and the new technologies, their practices in teaching

reflected a different picture. Practitioners' use of ICT was limited to desktop computers, televisions, video/DVD players, and CD/audiocassette players. This use reflected the availability of ICT resources, with non-maintained settings lacking certain types of equipment and software. The level of qualification and age had an impact on practitioners' ICT use and their confidence with it, with more qualified teachers being more likely to use computers, and older practitioners being less confident. Practitioners infrequently used or planned to use computers. As a result, the children were more likely to use a computer at home than at nursery if their families possessed one (53% of children used one on a usual day). Other technologies such as digital cameras, digital still cameras, photo-editing software and film editing software were used even less frequently, due to unavailability and/or lack of confidence. Even less use of the IWB was reported, due to its unavailability in some settings.

While the aforementioned study provided information on general aspects of early-years practitioners' use of ICT (e.g., their ICT attitudes and the frequency of their ICT use), other studies have provided a more detailed account of use in the classroom. For instance, a study conducted by Plowman and Stephen (2005) found that nursery-aged children's encounters with computers during free-play periods were not fruitful in terms of their learning, since they faced problems which they could not solve on their own, and they lacked the scaffolding (i.e., teacher's guidance) to develop their learning. This would raise questions as to the effectiveness of using technology to support child-centredness, albeit this is part of a wider picture, as practitioners had difficulty in explaining the idea of 'child-centredness' in relation to their practice (Stephen, 2010).

Some studies have shown that early-years teachers tend to adopt a limited definition of ICT, viewing it as consisting mainly of computers, and making use of ICT resources in a restricted way to support children's learning of technological skills such as control of a computer

(McPake et al., 2005; Plowman and Stephen, 2005). They leave children to play and explore with ICT resources independently, intervening only when invited to by children (Plowman and Stephen, 2005; Siraj-Blatchford et al., 2002). Early-years teachers appear to have a tendency, as Plowman and Stephen (2007: 15) suggested, to see direct interactions with children as didactic. Therefore, they give direct interaction less priority and attention in their work with children. This preference may be ascribable to a Piagetian approach to early-years education, which stresses the importance of free play for their learning and development (ibid, 19).

Plowman and Stephen (2007) explored ways in which practitioners could support three-to-four-year-old children's learning with ICT technologies. The researchers focused on the concept of guided interaction to frame the thinking about supporting children's interactions and learning with ICT. The study was conducted in eight pre-school settings, serving 400 children aged three and four from different socioeconomic backgrounds. Data were collected through discussions with practitioners in cluster meetings, interviews and video-recorded observations of ICT-related activities. Guided interaction has two dimensions: 'distal' and 'proximal' (ibid, 18-19). The first dimension effects learning indirectly, as it occurs at the planning and activity provision level. 'Proximal', meanwhile, refers to direct interactions between children and practitioners, and therefore, has direct effects on their learning (ibid, 18-19). Guided interaction was found to enhance children's learning across three main areas of the curriculum: knowledge and understanding of the world, operations, and dispositions (ibid, 19). This study showed that practitioners mostly intervened to help children with issues in relation to the equipment (i.e., 'operational' interactions), and that there were few instances of discussions to enhance learning (ibid, 21 -22).

In another study, Plowman and Stephen (2005) explored seven case study settings, including settings from three different sectors: local authority, private, and voluntary settings. Sources of

data collection were observations, interviews with practitioners, and brief conversations with children. The study showed that three broad categories of practitioners' involvement in children's play at the computer were identified: 'reactive supervision', 'guided interaction', and a 'hybrid approach' containing features of both of the first and second categories. Reactive supervision was the most common form of adult involvement in children's computer activity, and was limited to organizing turn-taking and providing help when children requested it. This approach (i.e., reactive supervision) limited young children's experiences with technology, as they were novice users of technology. While both practitioners and children referred to children's interactions with computer as "playing", their interactions featured feelings of boredom and frustration, and lacked essential play features (e.g., fun, spontaneity) (ibid, 149-150 inverted commas in original). The researchers concluded that introducing the computer as a free-choice play activity to young children is a 'risky strategy for facilitating learning', since the children hardly ever asked adults for help when at a computer (Plowman and Stephen, 2003 n.p.).

Further studies have also explored teacher's interaction and role. For example, Ljung-Djärf et al. (2005) aimed to explore how early-years teachers related to ICT as a tool in pre-school activities, and described the learning environments surrounding this use. The study took place in three Swedish pre-schools using video-documenting and interviews with teachers. The findings revealed that teachers related to computers in three ways: as a 'threat to other activities', 'an available option' and 'an essential activity' (ibid, 29). In the first category, the use of the computer was given a lower status in relation to other activities, and hence it was seen as 'threat' to them (ibid 33). The teachers, therefore, limited children's experience and interactions around the computer and left them to learn on their own. In the second category, computer use was considered as a joint activity and the decision as to whether to participate was made by children. Children's activities at the computer were regarded as important, and

the teacher would monitor the interaction and comment frequently on what they were doing. When a child requested help, the teacher would either offer it or encourage other more experienced children to provide it. This resulted in the creation of a 'supportive' environment, in which the children had the opportunity to interact and to learn from each other (ibid, 38). In the third category the use of the computer was seen as 'important', and the teachers ensured that all children had equal opportunities to use it (ibid). Children were encouraged to manage their activity at the computer on their own. The teachers tried to get the children not only to play computer games but also to learn by doing other activities at the computer (e.g., writing). This pattern resulted in a 'guiding learning environment', where children were invited to take part in the activity (ibid, 39-40). Ljung-Djärf et al. (2005) concluded that although these ways of relating to the computer use in the nursery were only part of the children's learning environment, but influenced children's learning considerably.

Generally, it seems that early-years teachers are reactive when children use ICT, although their assistance and support is necessary for children's learning. For instance, O'Hara (2008) conducted a study focusing on the potential pedagogic advantages of ICT use in early-years education. The study was carried out in four foundation stage classes (3-5 years) in two state-maintained schools in England. The methods included observing and interviewing children (4-5 years) and interviews with teachers. The study showed that the responsiveness and sensitiveness of the practitioners to the children's capacities, including their language abilities, enhanced children's learning about ICT, which was conducive to improving their outcomes and motivation.

From the discussion of different aspects of ICT use in early-years settings, it seems that less formal pedagogies are preferred by early-years teachers with regards to ICT activities. These may be informed by learning theories which sanction independent learning and exploration.

There is no clear ICT pedagogy to guide early-years teachers' practice in relation to computer activity planning, but research has started to point to useful directions in this regard such as guided interaction. Children lead lives full of opportunities for encountering different ICT resources at home, more so than in the nursery. In addition, in reviewing the literature on ways of ICT use in the early-years settings, Plowman and Stephen (2003: 150) argued that there is a scarcity of good evidence-based writings in this area.

2.2.3. Children's Use of ICT at Home

Marsh et al. (2005) carried out an empirical study in England with the aim of exploring the use of popular culture, media and new technologies made by young children (aged from birth to six) in the home. The study showed that from the earliest days of their lives, children are engaged in a variety of practices pertinent to popular culture, media and new technologies, developing a set of skills, acquiring knowledge and understanding of the world, and engaging with their families in a range of activities that assist them in understanding the role of technology in society (Marsh et al., 2005: 5). From interviews with parents, it was indicated that children's average time spent on screen was two hours and six minutes on a usual day, and parents felt that this use did not negatively influence their children's social activities, since they had balanced lives and carried out other activities such as reading, being read to, playing outside, and so on. Children's computer use was dominated by playing games on either websites, CD-ROM or DVDs. It was also found that parents felt that their children learned a great deal from computers in relation to counting and alphabet, amongst other skills (Marsh et al., 2005: 5).

Children's encounters with technologies in their home appear to support their developing competencies in different areas of the curriculum (Plowman et al, 2008; McPake et al., 2005). McPake et al. (2005), for instance, investigated the impact of socioeconomic disadvantages on

pre-school children at home. According to McPake et al. (2005: 6), children usually acquire three kinds of competence during their use of ICT at home: 'technical', 'cultural', and 'learning'. Technical competences pertain to children's capacity to operate certain items to achieve the desired outcome (e.g. their ability to use the remote control to change a channel on TV) (ibid). Cultural competences are related to children's capacity to comprehend and make use of ICT for social and cultural aims (e.g., entertainment, communication, and work) (Plowman et al., 2008: 309). The final learning competency refers to the potential of ICT use at home to support children's learning of literacy and numeracy (ibid). McPake et al. (2005: 6) found that the extent of children's learning in each of these competences relied mainly on factors such as access to equipment, the degree of parental support, or support from other social resources, and their parents or other family members' interests and attitudes. Plowman et al. (2008: 308-311) found that children's interactions with ICT at home helped them to develop their dispositions to learning (e.g., sustaining their attention, using a programme in accordance with given instructions).

McPake et al. (2005) found that families with lower income were less likely to own certain equipment and to have access to the internet than families with higher income. The study also showed that there was another important factor in determining children's access to ICT: the parents' views of technology and their previous experiences with it.

Generally, as discussed earlier, parents consider ICT to play an important part in their children's learning of early literacy and numeracy, and children learn the basics of its use and become increasingly aware of its different cultural values. Parents described their children's competences with ICT as 'just picking it up' indirectly by watching their family members making use of different items in their daily lives (Plowman et al., 2008: 311).

2.2.4. Children's Patterns of Interaction Around Computers

A study carried out by Brooker and Siraj-Blatchford (2002) investigated children's experiences of ICT at home and in the nursery, using observations of children's behaviour, structured interviews, and video recordings. The sample consisted of 48 children from different ethnic and social backgrounds, predominantly English (N=28 girls and boys) and a minority of Bengali children (N=17). The results showed that although children sometimes worked at computers separately and without observable verbal interactions, they were involved in a range of 'lively group' interactions around the computer which included: A- *support for language development* (shared use of forms and vocabulary stimulated by the programme), B- *pro-social behaviour* (mutually enjoyable social interactions stimulated by the programme), C- *assisted performance* (the more experienced child instructs less experienced child), D- *collaboration* (mutual negotiation of moves between children), E- *play behaviours* (active and spontaneous off-screen play stimulated by the programme) (ibid, 262). The researchers argued that while interacting around a computer, the children became involved in 'learning processes' that brought them advantages in terms of curriculum areas, development (social, cognitive and linguistic), and the acquiring of dispositions for learning (ibid 262). Furthermore, children with English as a second language found in the computing activity an opportunity to cross language barriers, as they became involved in a shared activity where their cultural differences appeared to lessen, as they had a common focus and experience (ibid 246). Children's co-operation while working at the computer was found to be influenced by software features, for example, it was encouraged when children needed support from their peer to solve a problem set in the software (ibid, 266). This study concluded that the computing activity in the nursery appeared to offer 'an extremely valuable means by which new forms of learning activity may be achieved' (ibid, 270).

A study by O'Hara (2008: 35) showed that nursery-aged children actively worked out how to use input devices of the computer or other forms of ICT resources, displaying problem-solving skills, ICT skills, motivation, creativity, and determination in their attempts to overcome their limited motor skills. Their use of different forms of ICT, including Pixies, involved a social dimension (i.e., pro-social behaviour), since there were instances of sharing ideas, collaborating, and discussing how to operate the equipment, with this dimension increased when ICT was incorporated into children's role-play areas (e.g., PC) (ibid). Moreover, even in apparently 'isolated' ICT activities, there were incidences of brief verbal interactions between other passing children playing around and the child using a PC (ibid, 35).

Interaction when operating the computer may be formed differently when an adult joins in. Eagle (2012) conducted a study to explore the interaction that goes on between an adult and a child in the context of artefact usage. The study included two families with two and half year-old children using the Electronic Learning Aids (ELA) with their parents: LeapPad and V-Tech Laptop (ibid, 41). Findings showed that the interactive technologies used by participants promoted a kind of instructional interaction, and accordingly, the participant parents behaved in an instructional manner (ibid, 45). Eagle (2012: 47) argued that one way of exploring the role of interactive technology in supporting young children's learning was by exploring adults' modes of interactions. However, this investigation of adult-child interaction in the context of artefact usage was carried out in the home environment, which may be very different from that of the nursery.

Forms of interactions may be limited or enriched according to the role children play in an activity. In a study conducted by Ljung-Djärf (2008: 61-68) to explore children's social dynamics while playing at a computer in the nursery, children took one of three positions: owner (in control of the computer), participant (sitting beside the owner) and spectator (at the

margin of the computer activity), each of which indicated ‘a space of acting’ defined in relation to the other children joining the activity. These positions and ways of positioning were found to be both static and dynamic, and constituted play around the computer. They were static in that they implied specific roles for the children, but dynamic as children who were more experienced with computer use had the opportunity to move from being participants to owners (ibid, 61). While the owner was at the ‘centre’ of the social interaction in the computer activity having control over what was happening on the screen, rejecting or accepting participants’ opinions, enjoying the success achieved (identified as ‘playing’), the spectator adopted a passive stance in this situation (ibid, 65-69).

The dynamic nature of children’s interactions was also indicated in a study conducted by Chung and Walsh (2006) in USA. They explored nursery children’s and ‘first graders’’ co-operation in a computer-supported writing project, and the learning opportunities generated by pairs when using computers. The writing project lasted for two semesters. The data were collected using many techniques, including videotaping children’s interactions while working at the computer, formal and informal interviews with teachers and children, participating observations, writing samples and a survey. The results showed that children’s interaction patterns became more cooperative (e.g., alternating the control of the mouse). Children had the opportunity to watch as well as to lead the activity, and became more confident in undertaking more significant duties on the computer. In addition, the computer maintained children’s interest and engaged them in the activity of writing (ibid, 373).

Some studies, however, showed that children’s interactions while using new technology may be passive. In a study conducted by Plowman and Stephen (2005), encounters with ICT were referred to as play, but common play features such as having fun were rarely observed (ibid, 149). In another study, Plowman et al. (2010: 98) further explored children’s learning with

technology at home and in the pre-school setting. Their findings showed that children rarely talked (e.g., asking for help, sharing a happy experience) when using the computer. When children did communicate verbally, their discussions were limited to the technical and managerial aspects of the computing activity (i.e., turn-taking) (O'Hara, 2008; Plowman et al, 2010; Plowman and Stephen, 2005). O'Hara's (2008) study showed that instances of help sometimes risked losing control of the activity to the more competent or older child. In addition, children received assistance, or what is referred to by Plowman et al. (2010: 98) as 'guided interaction', mainly from an adult, but rarely from their peers or other children.

2.2.5. Children's Perceptions of ICT

Although there are some differences, the word 'perception' is often used interchangeably with terms such as 'experiences', 'meanings', 'understandings' and 'conceptions' (Marton, 1997; Marton and Booth, 1997). As Marton (1997: 97) explains:

> The words 'experience', 'perceive', and so on are used interchangeably. The point is not to deny that there are differences in what these terms refer to, but to suggest that the limited numbers of ways in which a certain phenomenon appears to people can be found, for instance, regardless of whether they are embedded in immediate experience of the phenomenon or in reflected thought about the same phenomenon.

Following this practice, this thesis uses the term perception to refer to children's ways of experiencing and thinking about their ICT-based activities.

In the UK, while there has been an increasing trend in research exploring children's perceptions and understandings of ICT, most of this research predominantly focuses on children of primary school or older (e.g., Cranmer et al., 2009; Higgins and Smith, 2005; Luckin et al., 2009; Mumtaz, 2001; Räihä et al., 2014; Selwyn, 2006; Selwyn et al., 2009). These studies have shown the influence of schooling upon children's perceptions of ICT, including issues such as

the unequal relationship between pupils and teachers, and the difference between school regulated and restricted ICT use for 'learning' and home ICT use for 'play' (Selwyn et al, 2009). Unsurprisingly, it seems that primary school children of both genders liked and enjoyed using computers at home more than in their schools (e.g., Mumtaz, 2001). Some children, while aware of their Internet limited access in schools, chose to find ways to use it (Selwyn, 2006: 5-14). In addition, Cranmer et al. (2009) found that a disjuncture was seen between these young learners' simple understandings and conceptions of e-safety and risks, and the notion of e-safety put forward in the e-safety agenda adhered to in UK schools.

The 'digital disconnect' between schools and 'net-savvy' children has of course not been perceived as such by all children. Some, while aware of their limited Internet access in schools, find ways to use it, and not all have ready access at home (Selwyn, 2006: 5-14). In another example, young learners' understandings and conceptions of e-safety and risks are often quite restricted and can be deepened by teachers' input (Cranmer et al. 2009).

What very young children have to say about their own experiences with ICT?

With regards to nursery-aged children, while there is increasing interest in children's views of their ICT-related experiences, this research is limited in scope and direction. There has been much said both in policy and research into the potential of the new technology in educational provision for young children in the early childhood setting (e.g., Plowman et al., 2010; EYFS, 2014), but the voice of three to four-year-old children is under-represented in the technological research in the home environment (Plowman, 2014; Plowman and Hancock, 2014). And I would also venture to argue that this applies to technological research in the nursery setting where few studies can be accessed. What studies have been carried out?

Levin and Barry (1997) explored children's views of computers and the influence of their gender, age and school setting on their views. Twenty three teacher candidates at UNCG (the University of North Carolina at Greensboro) asked 65 children in kindergarten to Grade 5 classes to 'draw a technologist', and conducted interviews with the children about their understanding of computer hardware and software. It was found that there were developmental and gender differences in children's drawings (ibid, 267). Kindergarten through 2 Grade children exaggerated the size of the computer and its peripherals, which were larger than people in their drawings, but children in Grade 3 to 5 drew computers and people in normal proportion as in real life (ibid). Children of older age tended to depict the computer in their drawings as 'a tool for doing' and set their pictures in work settings. Conversely, children of younger age (i.e. kindergarten through Grade 2 children) drew the computer as 'a game machine', and set their drawings either in a house or at school. In addition, only few girls and boys could name software with female characters while more children of both genders could mention programmes with male characters (ibid).

In another study, McKenney and Voogt (2010) examined how nursery-aged children, four-to-seven-year-olds, made use of computers and the influence of their gender and ethnicity on that use. The study involved 168 Dutch native and immigrant children (82 boys and 85 girls), from pre-kindergarten (aged 4) through to second grade (aged 7) in two schools. The interviewers used icon cards to assist the children to understand, and concentrate on, the interview questions. Generally, children had positive attitudes toward computers, with older and male children being more positive than younger and female children (ibid, 663). Children across all age ranges were able to use the computer to play games, start a computer game, draw and search on the Internet independently or with adult help (ibid 661). However, these children's perceptions, as indicated by the researchers, might have been influenced by the interviewer's use of cards during the interview.

In an ethnographic study of the natural environment of play in the classroom, Wyeth (2006) explored the design of new technology for young children. The study involved 30 children (aged 3-5) and their teachers, and children were observed for four sessions over a two-week period. The study found that children interacted individually and with others at the computer table. However, the flow and development of children's computer activities did not resemble other activities using physical objects. Computer activities did not lend themselves to flexible play, for example, when an item such as a doll or a book was incorporated in new play scenarios (ibid, 1227).

In a more context-focused study, Hayes (2006) explored four-to-seven-year-old children's 'learning' experiences with a variety of ICT resources from their own standpoints. The study showed that children had wide experiences and knowledge of ICT, ranging from awareness of digital tools to judgements about their learning with these tools. Furthermore, the children in Hayes' (2006) study used words such as 'know' and 'learn' to describe their experiences, particularly with computers. Their learning came mainly from observing others, especially family members, memorising, and being taught.

Stephen et al. (2008) have looked closely at what children have to say about their experiences of digital technology. They researched pre-school children's descriptions of these experiences. In their study, ICT meant a wider variety of items that included in addition to the desktop computer and laptops, interactive television, digital and video cameras, DVDs, mobile telephones, electronic toys and keyboards, and ICT replica (ibid, 2-3). Participant children were invited to take part in three activities: using stickers to indicate their feelings towards activities that made them feel good; talking about the level of difficulty other children would experience in using a technological item; and sorting technological and non-technological activities into those that made them feel happy and those that did not. The study showed evidence that

children perceived new technologies as a fun or play activity (ibid, 25). In particular, new technologies were children's preferred source of entertainment, and children acquired competencies with a range of technologies at home and enjoyed ICT and traditional toys (ibid, 15). Young children were discriminating users of ICT in that some games were seen as fun but others did not attract their interest and were described as hard, long, childish or boring (ibid, 17-18). Children remarked that they received help in accessing technology mainly from their parents and also received support to a lesser extent from their brothers, sisters or cousins. In addition, the children showed an awareness that operational competence could be differentiated from the ability to engage in ICT-afforded activity (ibid, 30-31).

Another perspective on children's perceptions of ICT experiences comes from studies that explore the social processes that occur as children engage in technology-supported activity from an ecological perspective. Arnott (2013) looked at the nature of social interactions that took place when three-to-five-year-old children use technologies. The study showed that children's interactions were influenced by their 'technological positions' and social status (ibid, 97). Children tended to form four different positions in their interactions: owner, spectator, parallel owner, and mutual owner (ibid, 104). In assuming the role of the leader, young children followed either a dominant or a diplomatic approach. In the dominant approach, the children used their position to exclude others from play and achieve their own goals, while in the later they negotiated and compromised. The children needed to negotiate and mediate their interactions with others, and negotiation was more prevalent than imposition. Technologies created a potential for action and interaction, but it was children who made choices, negotiated their own agendas and developed their social roles and positons. Hence, 'intersubjectivity coupled with the affordances of resources facilitated mutual control. When such intersubjectivity was lacking, it resulted in struggles for control and potentially a conflict' (ibid,

111). However, it is not clear from the paper why and how conflicts emerge in the first place, and how children managed their friendships.

Vangsens and Okland (2015) looked at how teacher and pre-school children engaged in computer gaming situations in Norway. They carried out this examination by using dramaturgic concepts and theories (e.g., theatre, audience, performers, spectator, actor, multimodal forms of expression and narratives, interactivity, computer games as 'theatre with an audience') to analyse these didactic situations in terms of adult roles, mediation, computer gaming (ibid, 215). In particular, they developed the term 'didactic dissonance' to express the difficulties associated in a didactic situation where the teacher and children have conflicting interests, expectations and roles (ibid, 211). Didactic dissonance captures both productive and disruptive processes (ibid, 2012). The teacher's role was both as a spectator and an actor in the didactic situation, reflecting, observing, and reacting to the situation. Pre-school teachers tended to adopt different practices in their provision of their didactic dissonance (i.e., role) in the gaming situation. These included an intervening role where the teacher disrupts the children's game; a distal role in which the teacher adopts a negligent stance avoiding stimulating the gaming activity; and a supportive role where the teacher allows children to govern their activity and follow their own quests and interests (ibid, 217). In comparison to these pedagogically driven orientations of the teacher, the children tended to be oriented towards adopting a playful stance and playfully initiating the gaming activity (ibid, 218). The researchers found that teachers mostly resorted to the intervening role rather than distal or supportive ones (ibid, 218-219).

2.2.6. Summary

There have been many studies that have explored young children's ICT use at home and in the early-years setting. Evidence suggests that children's play and interactions in the context of ICT-led activities may include positive as well as negative aspects, depending on the nature of

the software, teachers' willingness to support the activity, and children's ICT abilities. Moreover, parents tend to view their children's play with ICT resources as positive, supportive for their learning, and non-detrimental to their development.

Children's interactions with technology appear to be influenced by teachers' reactions to technology, including teachers' sense of a threat to normal activity, and by children's position in the activity (i.e., owner, participant and spectator). Hence, children's experiences may be enriched or limited in accordance with the dynamic of the activity.

With regards to young children's perceptions of their experiences with technology, most of the available research focuses on older children (primary school children), and adult perspectives (i.e., teachers and parents). Nonetheless, the research that explored young children's perceptions of ICT found that children tended to focus on the playful aspect of their experiences. In addition, while an increasing number of research studies has explored nursery-aged children's perceptions of aspects of their education, less has explored what young children think of ICT. Hence, there is considerable value in listening to young children intensively about their technology-related experiences in early childhood settings.

Nonetheless, from the literature it can be seen that play in relation to ICT as in relation to other aspects of learning, development and practice, provokes a dilemma for the teacher. The teacher wants to encourage children to play and explore in their own ways but she also has a responsibility to fulfil the requirements of the play-based curriculum and conform to certain pedagogical approaches.

2.3. Development Theories and the Development of Young Children

Having discussed play and technology, I now turn my attention to development theories and the development of young children. This is important because it helps lay the framework for

the epistemological assumptions made in the research methodology later. Metacognition is also important because it provides a way of thinking about problems in play such as self-regulation, problem-solving and executive function. The section will be structured as follows. First, the term metacognition and its constituting elements will be introduced in order to frame the later discussion of the development of metacognition from the perspectives of Piaget and Vygotsky. Then, approaches for research with children and evidence on the metacognitive abilities of young children will be presented. The implications of such approaches have been ground-breaking. As a direct result, the research focus has moved from performing research 'on' children (i.e., children as the objects of research procedures to be performed on them) to research 'with' children (Darbyshire, 2000: 2) which respects their abilities, acknowledges their own opinions, views them as participants, and is influenced by these children.

2.3.1. Metacognition and its Constituent Elements

Very young children may be viewed as 'citizens' because they are capable of self-expression and of contributing to the process of making decisions that are important to them (Nutbrown and Clough, 2009: 196). Larkin (2014), in reflecting on a study of five and six year-olds, further found that:

> children of this age could not only articulate their understanding of their own cognitive processes but could also talk about their development as thinkers and the conditions under which they might think better (Larkin 2014: 189)

This notion might conflict with the traditional beliefs concerning young children's positions in early childhood education and settings (Bea, 2010: 212), in which a 'deficit' perspective conceptualises young children as lacking in the necessary adult abilities for effective participation in their community and higher thinking abilities (e.g., self-regulation, evaluation, planning, etc.). These thinking abilities are termed metacognition (e.g., the awareness of

themselves and others as thinkers, the ability of self-regulation, etc.). The deficit perspective has sometimes drawn on the developmental psychology of Piaget, which characterises the young child as egocentric in failing to appreciate the other's perspective, and as lacking the ability to think in the abstract.

The term 'metacognition' was introduced by Flavell (1997: 906) to indicate the process by which people think about and monitor their own thoughts, that is, their 'knowledge and cognition about cognition'. According to Lai (2011: 4), subsequent work in this area has used the term as it was originally introduced by Flavell. For instance, Kuhn and Dean (2004: 270) define metacognition as 'awareness and management of one's own thought'.

Schraw and Moshman (1995: 352) indicated that metacognition includes two components: 'metacognitive knowledge' and 'metacognitive regulation'. Metacognitive knowledge, according to Flavell (1979: 906-907), refers to our knowledge about ourselves and others as cognitive beings, and to our knowledge and beliefs about the variables shaping and influencing our cognition. Flavell (1979: 907) classified these factors into three categories: '*person*, *task,* and *strategy*' (emphasis added). The person category points to individuals' knowledge of themselves and others as capable of cognitive processing, their beliefs about their various mental abilities and the differences in these abilities among different people, and their knowledge about the content of cognition (Flavell, 1979: 907). An example of one's awareness of their mental abilities would be their knowledge that they are better at reading than at solving mathematical problems. And an example of one's metacognitive knowledge about others' different mental capacities would be their knowledge that person X is better at maths than person B. Task category, meanwhile, is our cognitive knowledge about the task, and metacognitive knowledge about how to manage this task and its demands (Flavell, 1979: 907). For instance, when solving a puzzle, the child would know whether this task was familiar or

new, simple or complex. The strategy category is our knowledge about the effectiveness of different ways in achieving our goals (ibid, 907). For instance, the child's knowledge that working alone on a complex mathematical task would enable them to concentrate better than working with others, which may disturb them. According to Flavell (1979: 907), some or all of these three components of metacognitive knowledge interact in a given cognitive enterprise.

The second component of metacognition is the regulation of our cognition. Metacognitive regulation is 'metacognitive activities that help control one's thinking or learning', and consists of three sub-components: planning, monitoring, and evaluation (Schraw and Moshman, 1995: 354). Planning includes choosing strategies that are suitable for dealing with a cognitive task, and 'the allocation of resources' (Schraw et al., 2006: 114). For example, a child who wishes to draw brings some papers, and makes decisions as to what to draw and what colours to use. Metacognitive monitoring involves 'self-testing skills' necessary to control learning (Schraw et al., 2006: 114) (e.g., when a child monitors their progress in finding a solution for a mathematic exercise). Finally, evaluation refers to our ability to assess our performance and our regulation of our learning (e.g., one's evaluation of their plans for solving a particular problem and whether the outcome was successful in solving that problem) (Schraw et al., 2006: 114).

Metacognitive experiences

Young children develop their metacognition through metacognitive experiences. These experiences include feelings that the child has about an activity (e.g., feeling confused, confident, that the task is beyond them), observing their progress in performing that activity, and evaluating the degree of their success (Larkin, 2014: 191). These experiences take place before, during and after the task. Metacognitive experiences are conceptualised as 'the implicit and explicit feelings which accompany learning and readiness to learn and which in turn

influence task progression through the activation of monitoring and control processes and the activation of strategies' (Larkin, 2014: 191).

Metacognitive experiences facilitate young children's cognitive and metacognitive development in that, according to Flavell (1979: 908), new metacognitive experiences create opportunities for children to reflect on their thinking:

> in novel roles or situations, where every major step you take requires planning beforehand and evaluation afterwards;…….[S]uch situations provide many opportunities for thoughts and feelings about your own thinking to arise and, in many cases, call for the kind of quality control that metacognitive experiences can help supply' (Flavell, 1979: 908).

Metacognitive experiences can shape metacognitive knowledge by influencing goals and strategies to achieve goals (Flavell, 1979: 908). Metacognitive and cognitive strategies may appear together in task solving (Flavell, 1979: 908). For instance, a student may think that they need to know more about a certain topic for an exam (a metacognitive strategy), and start to read more (a cognitive strategy) (ibid). At this stage, it is useful to reflect on metacognition within the context of child development.

2.3.2. Piaget: Stages of Development Theory and Metacognition

According to Piaget's developmental stage theory, the child's cognitive development progresses through many stages before it reaches the formal operational stage of development (i.e., abstract thinking such as reasoning, classifying, generalising, logical thinking). At the sensory motor stage of development, the infant's thinking is action-oriented and confined to motor reflexes (e.g., sucking) (Bronson, 2000: 23). The pre-school child, at the pre-operational stage, starts to develop simple symbolic representations, and uses language to represent ideas and pretend (ibid, 23). However, their thinking is egocentric, and they have difficulty in

appreciating others' perspectives. While they are able to manage and regulate their actions on the environment to some degree, they are not able to manage their own mental processes (i.e., operational thinking) (ibid, 23). Children's cognitive development becomes more advanced at the concrete stage. They become able to consider others' viewpoints, follow the rules of a game, think logically about their concrete experiences and solve concrete problems (ibid, 24). However, it is not until the formal operations stage that children become able to employ abstract and logical thinking (ibid, 24).

Piaget regarded learning as occurring through the process of equilibrium along two subordinated, complementary processes of assimilation and accommodation. Equilibrium is a self-regulating process of coordinating assimilation and accommodation (Bronson, 2000: 22-23). Assimilation is a mental process in which the child adopts and changes the environment and its objects to fit their own mental structures (i.e., understanding). In contrast, in accommodation the child alters their mental structures or schemas in response to new information from the environment. In the process of encountering new experiences and acquiring new information, some information may contradict the child's existing understandings and experiences, resulting in disequilibrium. This tension is resolved by accommodating the child's mental structure to the new experience, resulting once again in equilibrium.

According to this theory, pre-school children's cognitive capacities are limited as they are not able to think in the abstract, decentre, and take in the perspectives of others, as discussed earlier. They are not, according to this theory, capable of systematic, scientific, logical thinking (e.g., reasoning, hypothetical thinking, etc.) (Bronson, 2000: 24). Accordingly, they lack metacognitive abilities (i.e., self-awareness such as self-regulation, planning, evaluation,

reflecting on their thoughts, etc.) before reaching the formal operational stage of their development.

The Piagetian tradition has been influential in conceptualising the level of metacognitive capacities expected from young children (Lai 2011: 14). Researchers in this tradition (e.g., Paris and Newman, 1990; Zimmerman, 1990), as Lai (2011: 14) points out, often tend to conclude that young children are unable to carry out 'formal operations, which are necessary for abstract thought'. For instance, Paris and Newman (1990: 89) report that young children often exaggerate their abilities, confuse concepts of self-perception of their competence with other behaviours (e.g., judging being 'smart' on the basis of good social behaviour and sharing), and have poor metacognitive knowledge and self-efficacy. This line of research regards metacognition as 'a late-developing capability', as noted by Whitebread et al. (2005) and Perry et al. (2002), among others.

Piaget has had many critics and his theory of development stages is not universally seen as reflecting a comprehensive picture of the development of the child. One criticism is that its focus on discrete stages does not explain the holistic development of the child (Elkonin, 1999: 24). Elkonin (1999: 24), for example, argued that socially mediated modes of object actin and social relations are learned and reproduced in role play (Elkonin, 1999: 24). The interactions that take place during role play help children form their 'personal sense of life', and children begin to become self-aware in such a way that they start to control their own thinking and direct it towards their own objects (Elkonin, 1999: 24).

During social interaction, the child develops by adapting objective motives and norms of human relations, and by acquiring and learning about socially mediated modes of action with objects (i.e., the development of the child's cognition, and practical and operational abilities) (Elkonin, 1999: 27).

Elkonin explains (1999: 26):

> It is in fact these differences [of experiences between young children's emotional contact in role play, and adolescents' personal contact, in terms of content and depth of the child's penetration into the sphere of motives and objectives of adult activity] that allow us to picture the progression of different stages as a special sort of ladder for progressive assimilation by the child of the sphere of motives and objectives in activity.

2.3.3. Vygotsky's Socio-cultural Theory and Metacognitive Development

2.3.3.1. An Overview of the Socio-cultural Theory

The main idea in Vygotsky's (1976) socio-cultural theory (SCT) is that the human mind is mediated (Guerrero, 2004; Lantolf, 2000). That is, human beings use a variety of cultural tools, especially language to mediate both their thought processes and their relations with the world (Braten, 1991b; Lantolf, 2000). Hence, the importance of language in the development of high-order thinking and self-regulation in the human being is stressed (Bronson, 2000: 21).

SCT contains many key constructs including: mediation, ZPD, internalisation, inner speech, activity theory (AT), and community of practice (CoP). For the purpose of this review, the focus is limited to the constructs of interest to this study: mediation and the zone of proximal development (ZPD). Following this, a more detailed exploration of the theory's perspective on the development of metacognition will be presented by discussing inner speech, internalisation, and the development of scientific concepts.

Mediation

According to Lantolf (2000: 1) human mental activities are constructed, controlled, and planned through cultural tools (i.e., artefacts and concepts) and activities (Lantolf and Thorne, 2006: 197). When carrying out their actions and activities, human beings make use of different

cultural material tools (e.g., computers, books, pens, etc.) and/or psychological tools (e.g., language, signs, numbers, etc.) in their interactions with themselves and others (Lantolf and Thorne, 2006: 216). This process of mediation is a dynamic interactional process between the expert and novice or between the learner and physical resources (e.g., computers, books, etc.) (Oxford, 2003: 86).

To further clarify this point, as Braten (1991b: 307) suggests, Vygotsky (1976) drew a distinction between material and psychological tools. While the first are outwardly directed, thereby, enhancing our ability to control the world, the psychological tools (e.g., language, signs, letters, numbers) are inwardly directed to enhance our control of our thinking processes. Accordingly, the metacognitive approach of Vygotsky is unique in its focus on language (i.e., 'the linguistic tools of thought') and its role in mediating human thought processes and cognitive regulation (Braten, 1991b: 305-3011).

Zone of Proximal Development

Learning is initially socially constructed and later progresses to become part of the learner's developing intellectual property. This notion of learning is aptly seen in the concept of ZPD. This concept was originally put forward by Vygotsky (1978: 85), and was defined as 'the difference between the child's developmental level as determined by independent problem solving and the potential level of development as determined through problem solving under adult guidance or in collaboration with more capable peers'. ZPD is the place where various socially-based mediational means (e.g., language, signs, math, etc.) grow (Lantolf, 2000: 16), since the ZPD is 'the area of understanding into which a learner will move next' with appropriate social support (Pritchard, 2009: 25).

According to Lantolf (2000: 17), ZPD is a metaphor that assists in comprehending the child's way of appropriating and internalising different cultural mediational artefacts in their

environment. Thus, the conception of the ZPD assumes the active role of the learner in the learning process, whether in the classroom or in any other settings. It is assumed that the ZPD is confined to interactions that happen between a teacher/expert and a learner/novice which is typical of current classroom interactions. However, according to Lantolf (2000: 17), in considering the mediational nature of ZPD, co-operative group work is another context for creating opportunities for the development of learning of the participant individuals. For example, a group of learners jointly tries to solve a mathematical problem which lies beyond their individual capacities, but within the overall ability of the group as they make contributions co-operatively to solve it. In either case (i.e., interaction between an expert and child or between a group of learners), learning as a social process basically progresses from the socially situated interaction between the expert and the engaged learner (intermental) to become part of the learner's developing repertoire of abilities where the learner is able to use it to serve their own intellectual needs (intramental) (Pinter, 2011: 17). This learning results from meaningful collaboration between the involved parties (Lantolf, 2000: 18). In addition, learning in the context of the ZPD for the child even when working with the expert (i.e., teacher) is not about producing another version of the teacher's verbal instructions and actions (ibid). Rather, the child 'transforms' this learning as they appropriate it (ibid). This appropriation is done through a process called *imitation* in which the child becomes a 'communicative being' who responds to the teachers' instructions in their own ways (e.g., expressing their understandings, explaining their ideas) (ibid, 18).

2.3.3.2. Metacognition from a Socio-cultural Perspective

According to Vygotsky (1978: 128), the young child's cognitive development initially starts in the social environment through interaction with and learning from others. As the child grows in experience, their development progresses inward:

> Every function in the child's cultural development appears twice, on two levels. First, on the social, and later on the psychological level; first, *between* people as an *interpsychological* category, and then inside the child, as an *intrapsychological* category. (Vygotsky, 1978: 128)

The child's higher intellectual capacities appear at two levels during their life: a social level and a psychological one. At the first level, the child learns through interactions with people and/or objects in their environment. For instance, when a child comes to learn the name of certain equipment and its functions from observing and talking to their mother who uses it. Through their social experiences, the child comes to know, use, and learn about the different psychological functions (e.g., classifying, practical knowledge, decomposing certain things to its basic constituting elements, etc.). Then, the child will internalise this initially socially-based learning and become able to carry out different tool-mediated mental processes independently (e.g., using the language as a tool to solve a mathematical problem regardless the help of others). These two levels of psychological human functioning, according to Lantolf and Thorne (2006: 203), represent the interconnectedness of the social life and the internalised psychological functioning of the human being.

As has been explained in the previous section, human mental activities are mediated through the use of language. According to this theory of development, children's acquisition of higher cognitive processes (e.g. planning, problem-solving, etc.) is facilitated by using 'culturally' and 'socially constructed' psychological tools (e.g., language, numbers, signs) (Guerrero, 2004: 90). Lantolf (2000: 1-2) explains that tool-using thinking transforms the natural and rudimentary properties of the brain into a higher mediated mind (i.e., a 'functional system'). For instance, children's simple psychological processes transform into higher complex language-mediated processes through the use of sign-based systems (e.g., numbers, letters) (Barten, 1991b: 308). These tools function as a mediational means between the stimulus and the persons' response to it, thereby, inhibiting any direct response to it (ibid, 308).

Mastering these psychological cultural tools and using them for self-regulation, children become able to voluntarily control their own cognitive processes (Lantolf, 2000: 14). However, before reaching this advanced stage of mental development, children need to internalise 'socially mediated forms of goal-directed activity' (ibid, 14), with instructions and social interaction playing a role in the process. To clearly clarify and explain this cognitive development, two basic concepts of this theory will be discussed below.

Self-regulation

For Vygotsky (1976) the most important psychological tool is language, which enables children to gradually master and regulate their own cognitive processes (e.g., attention, memory, perception), and 'their overt behaviours', transforming these initially biological processes into higher psychological ones (Braten, 1991b: 306-307). Regulation is a form of mediation where children's activity is regulated by language used by others, which they come to appropriate through their participation in a collective activity and eventually use it to regulate their own behaviours (Lantolf and Thorne, 2006:199). The processes of self-regulation progress through three stages (ibid). In object-regulation, children initially resort to using objects or materials to assist them in carrying out mental processes (ibid). For instance, a reception class child might find it useful to use their fingers to carry out a simple mathematical process (ibid, 200). Then, in other-regulation, the child's activity is mediated by more knowledgeable others or peers, and other-regulation resembles the kind of support provided in the ZPD of the child (e.g., scaffolding) (ibid, 200). And finally, self-regulation is the stage at which the child is capable of carrying out various cognitive activities almost independently (ibid). Children's arrival at this stage is facilitated by a process called 'internalisation', which is in essence socially originated and in which the child mentally restructures the externally-based mediated support and uses culturally-based tools to mediate their cognitive activities (Lantolf, 2000; Lantolf and

Thorne, 2006). This voluntary control over their cognition will not be achieved until children become capable of using inner speech to manage and regulate their cognitive processes (Barten, 1991b: 309).

Private Speech

'Egocentric' speech is, according to Vygotsky (1986: 30), a form of 'thinking aloud'. This kind of speech differs from speech that is intended for social purposes (e.g., communication) in that it is intended to communicate with self, negating the need for a response from other nearby persons (Braten, 1991b, 309). It is regarded by Piaget as merely a 'running' accompaniment to the child's activity, without having any influence on their activity (Vygotsky, 1986: 28). In Piaget's opinion, it gradually decreases and eventually 'dies off' when children reach school age (ibid, 29-32). However, egocentric speech has a different function in children's cognitive development from Vygotsky's point of view. It was observed that the amount of egocentric speech was doubled when children faced difficulties during their problem-solving activity, compared with children not facing these difficulties (ibid, 30). This observation led Vygotsky (1986: 31) to consider this speech as an 'instrument of thought', which children use to plan, direct their problem solving, and find a solution to the encountered problems in the activity. Therefore, this kind of speech serves an important cognitive process, which is cognitive regulation (Braten, 1991b). Using egocentric speech to help them solve the encountered problem makes children's problem-solving behaviours 'purposeful' and makes them aware of their activity (Vygotsky, 1986: 31). As Vygotsky (1986: 30) explained, 'speech is an expression of that process of becoming aware'. The fate of egocentric speech is that it 'goes underground' (i.e., it becomes 'soundless inner speech') (ibid, 30-33).

Children's ability to use language to regulate and control their own cognition helps them to form concepts, and characterises their arrival at an advanced stage of deliberate control of their

cognitive processes. That is, they become able to use language as 'functional "tools"' to mediate their cognition, its usage, and control it (ibid 107):

> Our experimental study proved that it is a functional use of the word, or any other sign, as means of focusing attention, selecting distinctive features and analysing and synthesising them, that plays a central role in concept formation. (Vygotsky, 1986: 106)

However, according to Vygotsky (1986) children's metacognitive awareness and regulation (e.g., deliberate attention, self-reflective awareness, and cognitive regulation) develop as a result of instruction, especially instruction in scientific concepts. Pre-school children's psychological processes (e.g. attention) are now in a mature form but these are still not subject to their conscious deliberate control:

> The general law of development says that awareness and deliberate control appear only during a very advanced stage in the development of a mental function, after it has been used and practiced unconsciously and spontaneously'. (Vygotsky, 1986: 168)

2.3.4. Pre-school Children's Self-awareness

In recent research, there is evidence to support the view that young children are aware of their cognitive processes and can describe them. However, this is not straightforward, as a set of factors play a role in this regard, including the context of the activity, the level of difficulty of the task and teachers' pedagogical support and encouragement.

Donaldson (1987) in her book *Children's Minds* provided a re-interpretation of certain aspects of Piaget's theory concerning children's intellectual development, especially in relation to their thinking and linguistic abilities at the pre-school age. Thinking at this stage, as Piaget hypothesised, is characterised by an inability to recognise and consider the world from the other's standpoint, called egocentrism (ibid, 18). Addressing this idea, Pinter (2006: 8-9)

contends that Piaget's work underestimated pre-school children's developing abilities by suggesting that children were often unable to decentre and reason. Donaldson (1987: 43-44) went further by saying that children in Piaget's class inclusion experiment were not able to make simple inferences about the relation of sub-group of objects to the whole main group because the wording of the questions in the experiment was confusing to the children involved (e.g., '[A]re there more red flowers or more flowers?') (ibid, 42). In a carefully-conducted simplified experiment, the children's ability to answer questions about class inclusion significantly increased when the wording of the question was changed so as to emphasise the whole main class of objects (ibid, 44). In another famous experiment by Piaget, a child was invited to view a model containing three differentiated coloured mountains, and was then asked what a doll sitting on the other side of the table would see (ibid). It was noted that younger children of six or less tended to answer from their own standpoints rather than the dolls' (ibid 19). However, when the experiment was repeated so that the children were able to understand the task and made more aware of what they were required to do, even younger children of three-and a half-years old were able to respond with a high degree of accuracy (ibid: 23). Therefore, the difficulty that children found in Piaget's experiment was not caused by the reason postulated by Piaget (i.e., failing to consider the point of view of others because of their egocentrism), but because the activity was incomprehensible to the children and made overly complex (ibid 23). In other words, Donaldson (1987: 24) concluded that when the context or the situation '*makes sense*' to the child (emphasis added) (i.e., it is simple, its nature is known to the children, requires the children to respond as if in normal real-life situations, stated in simple words), the child is able to respond appropriately.

Recently, the discussion of young children's 'metacognitive abilities' has been explored by Whitebread et al. (2009). By using two observational tools, the study showed that nursery and reception class children displayed an ability to engage in verbal and nonverbal metacognitive

and self-regulatory behaviours during classroom activities including planning, evaluation, and emotional and cognitive regulation.

Jacobs (2004) examined kindergarten children's metacognitive development through the writing process by using observations, checklists, collections of children's work, and children's interviews in their learning environment. The sample consisted of sixteen children who were students in a kindergarten classroom. The findings showed that the children were able to think about their own thinking (i.e., their use of metacognitive language to describe their thoughts and writing in the interviews such as 'thought', 'thinking', 'idea', etc.), and that there was an increasing developmental trend in children's development as writers and in their metacognitive development (ibid, 21). Children's metacognitive knowledge was also evident in their consciousness of a range of writing strategies such as spelling and using dictionaries (ibid). As noted by the author, the interview questions presented children with the kind of metacognitive experiences that provoked them to think about their learning (ibid, 22). Furthermore, the context of the activity (i.e., the setting of a writers' workshop) offered a 'meaningful' environment that facilitated children's awareness and use of their thoughts and their literacy development (ibid, 22). Thus, Jacobs' (2004) study, as well as other studies as will be shown below, provided further support to Donaldson's (1987) idea that the context of children's activity has an important role in illuminating their cognitive abilities.

Young children's metacognitive abilities seem to follow a developmental trend. Schneider (2008) conducted a longitudinal study of 174 three-year-old children that aimed to explore the developmental links between the theory of mind (TOM) (i.e., 'the ability to estimate mental states, such as beliefs, desires, or intentions, and to predict other people's performance based on judgments of their mental states' and language abilities) (ibid, 115). Schneider (2008: 116) found that both language abilities and TOM in young children increased with age. A significant

relationship between language abilities and the development of TOM and metamemory was also found. It was indicated that the language abilities of children aged three predicted metamemory abilities at age 5. Based on the finding that early TOM development helped children to acquire metacognitive knowledge and perform better on metamemory tests, Schneider (2008: 116) concluded that 'TOM competences can be considered as a precursor of subsequent metamemory'. In addition, the findings indicated age-related increases in children's declarative metacognition (ibid, 116). However, the results indicated the presence of some elements of procedural metacognitive knowledge (i.e., monitoring skills which relate to the evaluation of our progress in a given task) in young children, although the developmental trend of this procedural metacognitive knowledge was less clear (ibid, 117).

Another important contextual factor is the teacher's role in enhancing the development of these capacities. Perry et al. (2002) conducted a study to examine children's metacognitive capabilities and other forms of learning. This study explored teachers' support of children's metacognition, intrinsic motivation, and strategic action while children were engaged in writing and reading activities. The study was carried out through student interviews, discourse analysis and classroom observations in three high-self-regulated learning and two low-self-regulated learning classrooms in a suburban school district in British Colombia. The findings showed that children's, including three-year olds, engagement in reading and writing activities showed their metacognitive abilities. In practice, they made choices between activities and how to work on them (e.g., where to do the activity, the research topic to work on, and to read individually or with a partner), and evaluated their strategies (e.g., in helping a peer with reading difficulty they tested the efficacy of their strategies in finding a solution), and solved problems. Furthermore, the educational context of the classroom including classroom tasks, teachers' experiences, authority structures, and evaluation practices, was described as playing a decisive role in supporting the children's developing self-regulatory (i.e., planning, evaluating, etc.) and

metacognitive abilities (ibid, 6). For instance, the teacher would assign children a writing task but, at the same time, give them some space to work at their developmental level, while challenging and encouraging them by providing support and asking questions. The teachers flexibly tailored their feedback to support children's independent learning while working on reading and writing activities, and their continuous assessment encouraged children to learn from their mistakes and be responsible for their learning (ibid, 8-14). In this way, teachers created an environment that was both supportive and challenging, in which children developed and exercised their self-regulated learning such as reflecting on their learning and providing their opinions on an activity (ibid, 10).

In a similar vein, Brooker (1996) conducted a study exploring reception children's attitudes and perceptions in relation to their schooling and learning. The findings again showed children's ability to express their views on learning in the classroom, and their metacognitive abilities (e.g., children assessed their learning, involved in planning their activities, and expressed preference for child-directed independent learning). In addition, interviews with children revealed their preferences for play, their confidence in their ability to learn and deal with curriculum work, and their awareness of their preferences being submitted to teachers' preferences for learning (ibid 12-13).

The aforementioned research has shown that some elements of metacognition are apparent in nursery-aged children in an educationally supportive environment. With this in mind, it may be concluded that nursery-aged children are, in some circumstances, sufficiently self-aware to reflect on and express their thoughts and preferences about a particular aspect of their learning, for example, their experiences with ICT.

2.3.5. Research on Children's Perceptions of their Education

There has been an increased trend in research studies to include young children in the research as 'participants'. This shows, as Prout (2002: 71) noted, researchers' belief in the potential of children to participate in the research 'productively'. For instance, Evans and Fuller (1998) explored children's perspectives of their nursery education. The study showed that the children reasoned that they attended the nursery setting mainly to play (e.g., to take part in imaginative play, perhaps using toy blocks and other available resources). When talking about what they liked in the nursery, they mentioned particular activities such as pretend play, building, drawing, riding bicycles, etc. However, when talking about their dislikes, they did not mention specific activities but tended to refer to aspects of the nursery experience that made them feel uncomfortable such as encountering aggression or being disciplined. Kanyal and Cooper (2010) explored young children's perceptions of their experiences of school in England and India through interview and observation. The study revealed that children in both countries liked coming to school, enjoyed carrying out a range of activities with their teacher(s) and friends, and wanted to spend more time outside. They attended school not only because they were instructed by adults to do so but also because attending school was perceived as beneficial to their futures.

2.3.6. Children's Perceptions of Play

In this section, I will now move on from these more general studies to focus on a detailed account of children's perceptions of their own play experiences, demonstrating their ways of characterising and defining their own play. Starting with seminal work on children's play perceptions by King (1979) and of course going back to research by Vygotsky and post-Vygotskians which was discussed before, a long line of research has focused on understanding children's meanings of play, as will be discussed below.

Wiltz and Klein (2001) researched children's perceptions of their experiences in their child care classrooms. The study involved 122 children (aged between 48 to 70 months) in eight child care centres (four were 'low' quality and four were 'high' quality). To achieve the purpose of the study a variety of qualitative data collection methods were used: classroom observations, field notes, analytical descriptions, and interviews with children (individually, in dyads and triads) about their 'likes' and 'dislikes'. In addition, children's drawings, their conversations and their picture stories were all collected (ibid, 218). Findings of this study showed that children's perceptions of the quality of their child-care centres were shaped by their experiences of context, for example the different rules governing daily routine, which activities were available, and teachers' modes of interaction. Children in low-quality child-care centres tended to talk about the activities as a consequence of the setting, whereas children in high-quality centres described activities in a more varied and lively way and as activities available to them, something which they chose to do (ibid, 220-221). Regardless of the quality of their child-care centres, children expressed a clear preference for play and play activities (ibid, 222). They also showed an awareness of the meaning of play and an ability to differentiate play from other activities that were routinely happening in the settings, for instance, they described play as 'fun, noisy, and spontaneous' (ibid, 222). 'Self-selection' and 'choice' were more important than the type of the activity when judging whether it was play or not, for example, the same activity that would be viewed as play and enjoyment when children could choose it freely, would not be viewed as play when it was mandatory and directed by the teacher (ibid, 222). This study showed that children have perceptions and views that may differ from that of their teachers in the setting, for example, circle time, which was viewed by children as boring but by their teachers as useful for children's learning (ibid).

Kärrby (1989) explored children's conceptions of their own play by observing and interviewing 15 children aged 5 and 6 years in two pre-school sites with differing pedagogies- one more

structured and the second less structured, in Sweden. The finding revealed that children's intentions in play activities were central, but in structured situations teacher's intentions formed the focus for the activity (ibid, 83). Play was a social activity normally carried out with a group of children/friends but learning was an individual enterprise (ibid, 83). The study also found that the educational context of the setting influenced children's definitions of play. In the play-based setting, the children's play was enriched by the variety of themes and use of fantasy stories, and lasted for extended periods of time (ibid, 84). Learning activities such as reading were perceived as 'hard work' (ibid, 84). In the teaching-based setting, children's play was 'conventional', themes lasted for short periods of time, and play was often interrupted by the teacher. Hence, the children in this setting differentiated play from learning, and learning was viewed as directed towards achieving certain skills (ibid, 85).

In another study, Howard (2002) explored children's perceptions of play, work and learning. The study included 111 children (aged three to six) in six settings including pre-school and early primary classes, in South Wales. In carrying out this investigation the researcher used an Activity Apperception Story Procedure (AASP). Photographic stimuli consisted of two parts: part one required children to classify a set of 26 photographs showing a variety of activities occurring in the classroom according to a condition (play/work or learning/not learning), the second part asked children to re-classify their choices and to provide justifications for their decisions) (ibid, 489). The study showed that children tended to differentiate between play, work, and learning. These children attended to a range of cues when making their judgments about work, play and learning, including 'teacher presence', 'positive affect', 'the nature of the activity', 'space and constraint' (ibid 492- 496). Their perceptions were also influenced by their early experiences in their educational settings. For instance, a difference was observed between nursery day children and children in primary school. Older children used 'additional cues' in their justifications and saw self-initiated activity as a defining characteristic of play (ibid 498-

499). This elaboration of play, work and learning by primary school children was seen as influenced by their early experience of education and their age (ibid 499).

Keating et al. (2000) examined teachers', parents' and children's attitudes to, and perceptions of, play in a reception class of teachers, parents and children. The study involved 10 primary schools in the north of England. Through semi-structured, informal, individual interviews in one to one situations, and field notes, the research revealed that children clearly distinguished between play and work. They perceived work as 'sitting at a table with pencil and paper' and consisting of 'writing and reading', while playing in their opinion consisted of 'choosing' activities such as painting, crayons, clock, books (ibid 443-444). In relation to teacher's perceptions of play, the study showed that while recognising the importance of play as a means of enhancing learning in the curriculum, reception class teachers felt pressured in terms of both their time and their 'involvement' in children's play. This was a result of pressure to attend to activities such as reading and writing. This pressure rendered play activities secondary, where play became either a 'reward' for children finishing the task early, or as a means of keeping children occupied while the teacher is busy (ibid 446).

Brooker (1996) conducted a study exploring reception children's attitudes and perceptions in relation to their schooling and learning. The research was carried out in a reception classroom consisting of twenty-one children (rising 5s) in addition to seven children who joined the class later on in the year. The researcher provided a detailed account of her work with children, and discussed children's ability to express their views, and their metacognitive abilities (e.g. children's ability to assess their learning, be involved in planning their activities, and preferences for child-directed independent learning). Interviews with children revealed their preference for play, their confidence in their ability to learn and deal with curriculum work,

and an awareness of their play preferences being subordinated to teachers' preferences for learning (ibid 12-13).

Factor (2009) reported on a study of 7 and 8 year-olds' perceptions of play and adult intervention in school. The study showed that play was of high importance to the children. The rules of their games, for example, marbles, games of throwing and catching stones, were flexible, since their games were less focused on competition and more on continuing the game. The children's games varied in levels of performance and hence less skilled children were accepted as playmates (ibid, 132). Friendship was important in play, and in play children built, strengthened and/or broke their friendships (ibid, 133). Choice was critical so that play would not be considered play without the element of choice and being undertaken voluntarily (ibid, 134). Choice meant that the child independently led, managed and made decisions. This play involved fantasy and imagination which empowered children in that they held the authority position and were free to follow or change the course of actions as they wished (ibid,135).

Robson and Hargreaves (2005) explored practitioners' perceptions and practices in early childhood in relation to the development of thinking in children aged 3-5 years. Five practitioners working in nursery and reception classes in England were interviewed. The findings showed that pretend play of any kind did not feature strongly in practitioners' views of developing children's thinking. However, a large number of the children identified areas with potential for pretend play as their 'favourite place': the construction area, dressing up and role play areas. The researchers highlighted the relationship of pretence to children's development in initial and in-service training. (ibid, 87)

Göncü and Weber (2000) explored pre-schoolers' classroom activities and interactions with peers and teachers in the U.S.A. They examined children's play and problem-solving activities, management, collaboration, and assistance interactions in play activities as a function of their

relationships with their teachers and peers. They found that pre-school children's activities and interactions were influenced by the relative power structure in their relationships. Teacher-child activities in which children had less power differed from child-peer activities, with the main difference occurring in play (ibid, 103). Management and assistance took place mostly in teacher-child interactions, but collaboration occurred primarily with peers. Teachers aimed to encourage children to be independent in carrying out their own activities and hence tended to keep their assistance to children at a minimum level; play was left to children (ibid, 103). Children tended to interact and initiate their interactions with peers more often that with teacher (ibid, 104). The researchers conclude that children involved in different types of activity and interactions depending on whether they were interacting with adult or with their peers.

Ceglowski (1997) reviewed research on children's perceptions of play activities in early childhood programmes. Children described those activities that were voluntary as play, but considered teacher-assigned activities as work. When a child chose an activity, but the teacher directed the activity, the children labelled this too as work. Play activities involved less standardisation than work activities and allowed children more control over what they did. Children viewed play activities as less important than work (ibid, 108). From children's perspectives, voluntary involvement, choice and self-direction were key elements in play experiences (ibid, 109).

Robson (1993) explored what children (4-5 years old) thought as play and/or as work. He elicited children's thoughts through conversations with children in three different settings (primary school, infant and nursery school, and a primary and nursery school) in London. The children tended to view play as a social activity, largely unconnected with learning, and work as related to seat-based, teacher-initiated tasks. Some differences in attitudes across settings were also apparent, particularly in children's feelings about choice, and their freedom to

choose. Playing was what the children liked to do at school, although children enjoyed both playing and work. Children liked choice, since they had control over their play, but did not like work since it left them little time to play. They liked play because of the sheer enjoyment that they felt (ibid, 42). Their ideas about play related to choice. The same activity (e.g., drawing) was perceived as either work or play depending on the context and on who initiated and directed it (ibid, 43). Work was seen as compulsory, hard and boring. Children's ideas about work were more instrumental and related to learning specific skills such as singing and letters. They overwhelmingly perceived play as a social peer group activity (ibid, 46). Children tended to view play as being carried out with friends or group of friends they liked, and teachers were seen as work partners but were rarely seen as play partners (ibid, 47).

King (1979) explored kindergartners' perspectives on play in England. The children described most of their classroom experiences as work, and fewer as play. Activities that nearly all children agreed were play included using a math game, listening to a record, building with blocks, having a snack and painting pictures. Some activities were labelled work at one time and play at another (e.g., painting pictures, colouring), depending on the context in which the activity occurred (ibid, 84). In particular, there were some decisive elements that would distinguish play from work, including whether the activity was voluntary and how much control the children had over the activity (ibid, 84). For instance, nearly all teacher-assigned activities were viewed as work. Although play activities were more important to the children, they believed that work activities were more important to the teacher; they saw the teacher as a 'worker' (ibid, 85). As the study showed, teachers and children had different definitions of play. Teachers perceived play as enjoyment and creativity, while children stressed self-selection, self-control and exclusion of teachers as play. Children believed that play did not have an important educational function in the classroom. Education was placed in the category of work. When the teacher used play activities as part of the curriculum, the children redefined

such activities as work. Therefore, the researcher posed a distinction between 'genuine play' and 'illusion play'. Genuine play was perceived by the children as play, but illusion play included activities that were disguised as play and represented play from the observer's, or the teacher's, point of view (ibid, 86).

In another study, Rothlein and Brett (1978) explored different stakeholders' perceptions of play including children (2-6 years old), teachers, and parents. This study showed that different parties had different stances in relation to play and its functions in the classroom. Teachers and parents viewed play as fun, and as a tool for learning and enhancing physical, cognitive and social development including language development, coping with tensions, problem-solving, taking responsibility, experimenting, and developing thinking. Children thought of play as playing with specific items such as dolls and cars and having fun outside. Just as in the previous studies, children viewed play as less important and curtailed when the teacher required them to do 'work' (ibid, 48).

Wing (1995) too researched young children's perceptions of classroom activities in a kindergarten and a first/second grade classroom in a small suburban primary school. Two classrooms were chosen because they followed a more child-centred approach. This study drew on the language children used during interviews combined with participant observations and teacher interviews (ibid, 225). The research showed that children received messages from the classroom context, their peers, and their teachers that signalled to them whether an activity was work or play. These messages included: the obligatory nature of the activities, the cognitive and physical effort required, the involvement and evaluation of the teacher, and the fun children experienced while engaged in activities. Children also perceived some activities to be 'in-between' work and play (ibid, 223). Hence, a play-work continuum was presented. Play and work activities were clearly differentiated, although teachers tried to make work play-like by

incorporating ‘hands-on materials, giving children choices, and encouraging exploration and discovery.’ (ibid, 227) The essential factor influencing whether children considered an activity as work or play was whether the activity was obligatory or not (ibid, 228). Work was associated with writing, spelling and other teacher-controlled activities that were obligatory, and play was associated with child-led activities and choice. The same activity would be considered work or play, that is, it is work when teacher’s intentions or expectations became central to the activity. Hence, changing the social context of the activity from voluntary to teacher-led made children perceive an activity as work-like. Children perceived activities such as painting, blocks, sand and so on as play, since these were voluntary, carried out with their peers and were based on their intentions. Work activities were to be completed by children under the authority of the teachers, and were commented on and evaluated by the teacher. But play activities rarely involved teachers, and teachers rarely evaluated children’s play. Play activities were fun because they required less conscious cognitive effort, included physical actions such as running, and were liked. Elements such as sitting, listening, using paper and pencil, and being at tables made activities more work-like (ibid, 236). Freedom of physical movement in the room, smiling, choosing and playing with toys made activities play-like for children.

Dockett and Meckley (2007) explored children’s perceptions of play in kindergartens in Australia and the U.S. Participant children took part in discussions about their own play. The study showed that children distinguished play from non-play activities such as reading and maths (ibid, 103). While play was the most preferred activity, learning tasks were the least (ibid, 95). Friends were important in play. Play and work could not be carried out at the same time (ibid, 105). Play was with friends, involved pretence, physical activity, and was self-initiated (ibid, 106-107). Some work activities could be fun (ibid, 107). An important contribution in this study is to see play and work along a continuum. This shows that they need

not be classified rigidly as some activities are more play-like or more work-like depending on level of enjoyment, control and the nature of the activity.

All these studies showed that children have perceptions that are different from these of their own teachers and parents. Children liked to play and differentiated it from work. In making judgements about whether an activity was perceived as play or work, the children were sensitive to the context of the activity. Teacher-led activities were regarded as work as these were of an obligatory nature and hence were perceived as boring. Self-led activities were regarded as play since these were voluntary and offered children choice, and hence were perceived as fun. The children did not perceive their play to be related to their learning as they associated learning with teacher-led activities. Between these two extreme poles of play and work, there was a set of activities that were perceived as more play-like or more work-like depending on a variety of contextual factors such as locus of control, level of enjoyment experienced, with whom the activity was done, and whether the teacher was involved.

However most studies have explored children's perceptions of their activities in the context of free and teacher-led activities. This means that they tend to contrast play with work and hence tend to miss more subtle questions about play, particularly free play. For instance, when children manage their free play, how do they react to the intrusion of other children and how do their gendered identities influence their perceptions of play? How does their moral thinking influence their interaction with others?

2.3.7. Agency

As we have seen in the previous section, agency expression is an important aspect in children's characterisation of an activity as play. Having opportunities to influence an activity, to control it, to choose whether to engage in it makes the activity play. Agency is seen in children's freely-

chosen activities. But children's understandings are embedded in complex social and cultural practices (Broadhead, 2004) and, in particular, are shaped by context including the power relations within the pre-school setting (Wood, 2014).

Recent research which has explored young children's agency shows how children construct their agency. Markstrom and Hallden (2009) explored young children's agency strategies for managing the collective regulation and negotiating their participation in collective activities in two preschools located in two different areas of a Swedish town. They found that children, being members of a collective institution (i.e., a setting dominated by daily routines, scheduled activities, and prescribed projects), resorted to a set of strategic actions to achieve their personal autonomy and pursue their individual interests (ibid, 115-116). These strategies were silence, avoidance, negotiation, collaboration, and partial acceptance (ibid, 116). In the silence strategy the child, engaged in an activity of their own choice, evaded the teacher's commands to give up their activity by not responding to her request, placing themselves in an inaccessible place to the teacher, and, thus, continuing to play. As a result the child succeeded in preserving the ownership of the activity, time, and space (ibid, 116). Another strategy in achieving control was to negotiate their wishes and intentions among themselves and with the teacher (ibid, 117). Children used co-operation in a variety of ways to show solidarity, supporting each other's claims in the face of the teacher's commands to do something, and defending each other from the teacher and other children (ibid, 118). According to Markstrom and Hallden (2009: 118-119), these strategies showed that the children were competent negotiators, knowledgeable actors, and meaning makers. They creatively overcame the pedagogical structural routines that governed their time and space in the pre-school and, thereby, made the pre-school their own space and under their control (ibid, 118-119).

Corsaro (2005) explored young children's collective agency in their peer relations. Drawing on Emirbayer and Mische (1998), agency was seen as dynamic and situated and constituted of three elements or dimensions: iteration (i.e., the agent's reactivation of past thoughts and courses of action in the practical circumstances of the situation), projectivity (i.e., the agent's generation of cognitive representation of potential future action trajectories and creatively altering present actions and thoughts in accordance to the agent's wishes), and practical evaluation (i.e., making decisions on which courses of action trajectories to follow in the face of emerging practicalities of the present situation) (see Emirbayer and Mische, 1998: 970-971). Corsaro (2005: 234-237) found that the iteration element of agency was manifested in fantasy play. In fantasy play, children creatively made use of previously established shared knowledge to spontaneously and collaboratively invent, develop, and improvise in their present interactions (ibid, 234-237). As Corsaro (2005, 237-238) argues, in contrast to adult conceptions of fantasy play (i.e., egocentric, or just 'kids playing make belief'), fantasy play is complex and social, and an expression of young children's collective agency. In this type of play, children not only made use of previous knowledge but also transformed their experience in their spontaneous improvisation of play events (ibid, 238).

As we will see in chapter 5, agency is key in children's perceptions of digital play in my study. They used their agency power to transform ICT activities into their own arenas wherein they sought to create time and space to play.

2.3.8 Ecological Perspectives

One way of understanding the constraints on agency is provided by the idea of an ecology in which the social actor operates. The ecological view, as originally proposed, talks about agency along with other factors (e.g., roles, activities, social and material resources) that dynamically influence what is going on at the microsystem in a setting. Ecological perspectives view human

development as situated (Weisner, 2002) or as Bronfenbrenner (1979: 12 emphasis added) put it, they focus on the phenomenon of '*development-in-context*.' The ecological environment operates as a system of interlinked operations and processes, 'a set of nested structures each inside the next, like a set of Russian dolls' (Bronfenbrenner, 1979: 3). These structures are interconnected and together they directly or indirectly influence the immediate setting of the developing person.

The ecological environment starts with the very immediate structure(s) within which the individual functions, such as the family or a classroom. However, what happens in the immediate setting is influenced by connections, processes and relations at remote levels: meso, exo, and macrosystems (see Bronfenbrenner, 1979 chapter 2). A mesosytem involves connections between the immediate settings in which the child lives and actively carries out their own activities (e.g., relations between home and nursery) (Bronfenbrenner, 1979: 25). An exosystem involves settings in which the child does not directly participate but yet the processes and events taking place in these settings influence, and are influenced by, that child (e.g., parent's workplace, parents' social network, etc.) (ibid, 1979: 25). Finally, the macrosystem refers to 'consistencies, in the form and context of lower-order systems (micro, meso, and exo) that exist, or could exist, at the level of the subculture or the culture as a whole, along with any belief systems or ideology underlying such consistencies' (ibid, 1979: 26). Although some research presents these very rigidly, the original work by Bronfenbrenner (1979) suggests these systems are much looser. Depending on what the researcher focuses upon, micro, meso, exo and macrosystems may become or refer to different things. For instance, if I am looking at the processes going on in the classroom, then the mesosystem might be the school and its connections with the home, with the exosystem involving local authorities. However, if the research focuses on a group of children, then the classroom can become the mesosystem and the school is the exosystem.

The microsystem includes the activities, roles, and interpersonal relations '*experienced'* by the person in a setting with certain material characteristics (Bronfenbrenner, 1979: 22 emphasis added). The term experienced is important here as Bronfenbrenner (1979: 22) explains: '[V]ery few of the external influences significantly affecting human behaviour and development can be described solely in terms of objective physical conditions and events'. Hence, ecology looks at the roles (i.e., teacher, learner), social structures (e.g., rules, pedagogies), relations, positions as well as objects, both as these elements take place in everyday activities and as perceived by the child (Bronfenbrenner, 1979). In my study, as with many studies of technology, the microsystem was all important because the wider systems were underdeveloped.

2.3.9. Summary

This section has considered metacognition, its components and development in young children from two perspectives. A key theme has been metacognition. Pre-school children are not self-aware enough to reflect on their own thoughts, either from the cognitive perspective or from the socio-cultural perspective. From the viewpoint of Piaget and Vygotsky, children of six-year old or less are incapable of self-awareness as thinkers (i.e., being conscious of their cognitive processes), since they are not capable of abstract thinking. However, both of these positions on children's metacognitive abilities can be questioned on the basis of evidence from recent research. This indicates that when the context of the activity is appropriate to pre-school children (e.g., understandable to them), they are already self-conscious, displaying some elements of metacognitive and cognitive processes (e.g., solving-problem, planning).

That said, the theoretical contribution of Vygotsky and his followers has been its emphasis on the relationship of play to learning from a historical and cultural perspective. Here, play is seen as a cultural activity that changes over time. Hence, educators' ideas and understanding of children's development are seen as an outcome of complex interaction with children

themselves. The nature of the child's development is dependent on cultural choices embedded in the educational system and its contextual setting. Theoretically, play research has emphasised cultural and historical approaches although policy documents still reflect the influence of Piaget's norms and stages. Methodologically, play research has leaned towards the small scale or qualitative. Detailed analysis through sustained observation has been favoured in ethnographic methods. The influence of interactions between developing children and the environment they inhabit has been seen in this chapter. Compatible with this perspective, Bronfenbrenner's model (1979) has acknowledged that children develop in a social and cultural context influenced by two-way interactions and relationships within and between the environments in which they are located. The model describes four related components: the developmental process, involving the dynamic relationship of the individual to the context; the child with their individual biological, cognitive, emotional and behavioural characteristics; the context of development conceived as a nested systems of the ecology of human development; and time, involving multiple dimensions of temporality that changes over the life-span. Bronfenbrenner (1979) argued that together these components constituted a process-person context-time model useful for conceptualising the integrated development system. These integrated components encourage or discourage children's engagement with features of their environment, with people, other children, artefacts, or symbols. The model thus provides a useful explanatory theoretical framing for this chapter that has examined not only characteristics of the immediate environment of the child (i.e., microsystems or child-adult or child-child interactions) in the early years setting as well as those most distal (i.e., macro-systems that comprise system such as exosystems of home as well as nursery) and environmental influences that do not directly involve the child, such as teachers' professional development or parents' workplace conditions (i.e., mesosystems). The ecological model could serve to draw disparate elements of the chapter together.

The section has also noted that there has been an increased trend in including young children in research as participants. They have their own perspectives on their education that are different from adults. They differentiate between play and work based on how much control they have over the activity and whether the activity is voluntary or imposed. Some activities are presented on a continuum as more play-like or work-like depending on the context of the activity. For instance, feelings of enjoyment made teacher-led activities look more play-like.

2.4. Reflections on the Literature Review

Table 1: key points of consensus and debate about play

Key ideas	Issues of continuing debate	Implications for my study
Section 1: Early Years and Play 1. Children differentiate play and work by context (e.g., whether the activity is carried out with a teacher or friends). (e.g., Dockett and Meckley, 2007; Wing, 1995)	Play is the child's leading activity: it is not serious and hence is seen of less educational value than study. (e.g., Ailwood, 2003; Rogers, 2010; Strandell, 2000)	How children define digital play? Will work and digital play be differentiated by context? What children consider as digital play? Will context be important for defining digital play?
2. The early years curriculum is constrained by policies (e.g., Faulkner and Coates, 2013)	These policies may be critiqued (e.g., Tickell, 2011).	How can the context be described?
3. Free: play is spontaneous, intrinsically motivated, voluntary and free from externally imposed rules (e.g., Rogers, 2010; Wood, 2014)	Play is rule-governed as in role play (Vygotsky, 1976). Play in education is always pedagogised in some way (i.e., educational play is harnessed for learning purposes). (e.g., Ailwood, 2003; Brooker, 2010)	Is digital play free? What kind of rules will govern children's digital play? What use will children make of these rules?

		What pedagogies will teachers follow when children engage in digital play? How will these regulations and pedagogies influence children's interactions?
4. Fun: play is a happy experience (e.g., Sylva et al., 1976).	Play is not always fun: it can sometimes include asymmetric power relations among children, cruel physical play, teasing, exclusion, feelings of discomfort, etc. Thus, children may fail to develop a happy play experience (e.g., Grieshaber and McArdle, 2010; Sutton-Smith, 1995).	Will children perceive digital play as fun? Why? How will the context of digital play influence their feelings of fun? Will teachers/practitioners let children manage their activities with technology on their own?
5. Play is always positive: it fosters children's all-round development (e.g., Vygotsky. 1976).	Is there evidence that confirms the developmental advantages of play?	Is digital play of any educational value? If so, how can digital play be harnessed in the play classroom?
6. Child-centred and play-based pedagogies are advocated in early years policy and curriculum (e.g., Stephen, 2012).	There are continuing tensions both in respect to how prescribed curriculum should be translated into practice and the degree to which teachers should intervene and structure children's play (e.g., Brooker, 2011; Jones and Reynolds, 1992).	How will teachers perceive their role in ICT-based activities? What type of pedagogy do they follow in supporting young children's activities with technology?
Section 2: ICT and Early-years Education 7. Children have rich encounters with ICT at home and to a lesser extent in nursery e.g., Marsh et al., 2005).	Should nursery replicate home provision?	Will children's experiences with technology be different from their experiences with traditional play objects and play outside?

8. Some children's activities with technology is characterised as 'play' clear (e.g., Plowman and Stephen, 2005). . 9. Common practice is to leave children on their own with minimum interference (e.g., Plowman and Stephen, 2007).	Teachers' role in ICT-based activity is not clear (e.g., Plowman and Stephen, 2005).	How will children define their technology-based activities? If they perceive their ICT-based activities as play, then what will make these activities as such? How does technology mediate their interactions and relationships?
10. ICT seems to provide children with experiences that support their development across areas of the curriculum (e.g., McPake et al., 2005; Plowman et al, 2008)	There are concerns about the potential negative impact that ICT might have on children's development (e.g., Alliance for Childhood, 2000; Barnes and Hill, 1983).	What kind of developmental consequences will these experiences have for children's development?
Section 3: Metacognitive Development and Children's Perceptions 11. Young children are active agents. Cognitive and metacognitive processes help structure their thinking and performance of activities (e.g., Larkin, 2014)	There are different perspectives on children's development (e.g., Piaget, Vygotsky, Donaldson, 1987) and their potential as research participants e.g., Prout, 2002).	Can children in this research be participants and can they provide us with a new perspective on their ICT experiences? Will their perceptions of their experiences with ICT be different from those of teachers?
12. Young children are participants in research (e.g., Prout, 2002))	Ethical issues are raised in relation to including children as participants in the research process.	Will ethical issues arise?

As can be seen in table (1), my study builds on related contributions to the early-years curriculum, ICT, and children's development. This study has the potential to address a number of questions, which have arisen in the literature, around curriculum, play, pedagogy, and children's development and experiences. In particular, this study will add to the literature by

exploring how children conceptualise their own ICT experiences as set out in the methodology chapter that follows. The key emerging question from the literature review is: what are children's perceptions of ICT experiences, be it computers or other ICT resources, in the early-years setting? And this raises interesting questions of context, technology and of course play itself.

The study should be seen not only in the context of the literature on metacognition and play reported earlier, but also takes account of shifts in the theoretical underpinnings of early childhood education. In particular, we have seen the impact of the United Nations Conventions on the Rights of the Child (UNCRC) (1989) and the new paradigm of the sociological studies of childhood, as influential with respect to the status of the young child. Young children are seen increasingly as the best sources of information about their lived experiences of education and early childhood.

This study will take as its initial starting point the argument that children's experiences are not limited to what they do (i.e., their actual actions and interactions), but also include their perceptions of what they are doing (e.g., their thoughts, understandings, opinions and conceptions of what they are doing).

Context in this study is important and takes in both the social and cultural setting. Often in the literature we read about the importance of context in influencing the setting of the activity. For example, a study by Ljung-Djärf et al. (2005) showed that how teachers looked at technology in the classroom limited or enhanced children's interactions with computer. In this respect and following Oxford (2003: 86), the use of technology is both situated (i.e., it occurs in a specific educational setting of particular learners) (ibid, 86) and mediated through different forms and tools of mediation (e.g., verbal interaction, their social relationships, etc.). These are often discussed in relation to an ecological approach taking in ideas of affordance of many

interconnected elements including agency, pedagogy, social and material issues. These will be taken up later in the discussion when their relevance will be seen more obviously by the reader.

2.5. Summary

This study aims to explore children's subjective experiences with ICT in the nursery setting. The literature review has identified a paucity of studies that have explored young children's perceptions in this area. It has also foregrounded this discussion in current trends of research with children, and shown that young children are able to express their views and are capable of metacognition under certain circumstances. In the following chapter, the mechanisms of carrying out this study will be discussed. The choice of the research methodology and methods will be explained, and a brief critique of research with children will be provided, along a consideration of the ethical issues of this study.

3. Chapter Three: Ethnographic Case Study

3.1. Introduction: Qualitative Research

Richard and Morrow (1996), Hennessy (1999), and Woodgate (2001) note the dearth of qualitative studies exploring pre-school children's experiences and perceptions. This may be attributed to their *presumed* incompetency (Woodgate, 2001: 160, my emphasis). Hence, throughout the history of technology in education, while there have been controversies regarding its potential, there has been less consideration as to what children themselves have to say. With this in mind, this study explores nursery-aged children's perceptions of their own experiences in using new technologies. The research problem is the 'driving force behind the research endeavour' (Fetterman, 2010: 3). Children's perceptions of their own experiences with ICT consist of not only their engagement with ICT (e.g., their behaviours, ways of managing these activities, and actual verbal and nonverbal interactions), but also their perspectives about these experiences (i.e., their beliefs, thoughts, attitudes, and motives for engaging in these activities) (Sheridan, and Pramling Samuelsson, 2003: 278).

It was noted in Chapter 2 that each child's early experience is interactive and contributes to development. The child's interaction is dependent upon the environment in which they live (Bronfenbrenner, 1979). The ecological model was also explanatory of the way practitioners' discourses, values and practices with children were a reflection of the broader cultural macro-system. In line with the notion of a socially-constructed reality, children, too, had their own interpretations of the social organisation and activities in their setting. This social constructivist position allows for a variety of interpretations of the way social reality is constructed by children and is different from the positivist tradition. This has implications for this study's methodological framework, methods and ethical considerations.

3.2. Characteristics of the Qualitative Research Approach

According to Hennink et al. (2011:10), researchers are advised to use a qualitative approach when the aim is to grasp participants' own perspectives, beliefs, and attitudes on their own world in a natural context. Hennink et al. (2011:8) acknowledge the difficulty of arriving at a precise definition of qualitative research, since it is an inclusive 'umbrella term' encompassing a 'wide range of techniques [(e.g. unstructured or structured interviews, participant or non-participant observation, field notes)] and philosophies [(e.g. worldviews or a variety of paradigms such as postmodernism, social constructivism)]'. Indeed, the qualitative approach to inquiry, as noted by Denzin and Lincoln (2011: 6), does not have a particular single 'theory or paradigm'. Furthermore, a qualitative approach begins by establishing philosophical perspectives (e.g., ontological and epistemological assumptions), which will have practical and theoretical consequences for the whole research process (Creswell, 2007: 15). For instance, the researcher who works within the social constructivist paradigm will treat reality (i.e., ontological assumptions) as constructed by individuals through their interactions (i.e., epistemological assumptions) in a particular social context. This approach allows for a variety of interpretations of the way in which social reality is constructed by children.

A definition of the qualitative approach was put forward by Denzin and Lincolin (2011: 3) as:

> a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomenon in terms of the meanings people bring to them.

In other words, it is an investigatory practice that aims to explore a social phenomenon, or problem in its natural context, using a wide range of resources of data collection. Qualitative research practice allows the researcher to explore the phenomenon in depth, interpret the meanings that the participants ascribe to it, and capture the influence of the cultural and social contexts on these participants. This concern to understand the research participants' perspective is based on the assumption put forward by Schutz (1962) that unlike the 'objects' of natural scientific inquiry, the world is meaningful to human beings, who are the subjects of the social inquiry (i.e., social actors) (Bryman, 2012: 399). Therefore, rather than strictly controlling a phenomenon, as might be done in a laboratory, qualitative research adopts flexible research approaches and unstructured methods.

The researcher in this approach becomes an instrument of data collection (Creswell, 2007: 38). For instance, in ethnography, the researcher actively participates in the field and observes the activities of the group of interest, talks to its members, writes notes, keeps research diary, and makes use of cultural documents. That is, the researcher collects data from a variety of different resources (ibid: 38) which may assist them in achieving a better understanding of the culture of this group. In looking at research participants' meanings and their context, the researcher attempts to provide a 'holistic' account of the issue under investigation (Creswell, 2007: 39). In addition, the researcher adopts an inductive approach to data analysis, so that theory is distilled from the data collected, reflecting the participants' meanings of their own world. The final published report is a site where a variety of interpretations occur (i.e., the researcher's, the participants', and the reader's interpretations of the reported/constructed reality) (Creswell, 2007: 39; Whitehead, 2004: 17). The main characteristics of qualitative research are outlined in table (2) below.

Table 2: a summary of characteristics of the qualitative research approach

Characteristics of Qualitative Approach to Inquiry	
Naturalistic	Studying the phenomenon in its 'natural setting' (Denzin and Lincolin, 2011: 3).
Emic perspectives	understanding the world from the participants' perspectives (Hinnink et al., 2011:16)
Holistic	It attends to the effects of the participants' different contexts on their actions and activities in order to better understand their actions, different perspectives, and the meanings the ascribe to these actions (Creswell, 2007: 39)
Inductive	Hypothesis emerges out of the data analysis (Whitehead, 2004: 17)
Flexible design	The plan may change to accommodate to the new insights from the field (Creswell, 2007: 39)
Interpretive	The final report is a site where different interpretations of the author, the audience, and participants occur (Creswell, 2007: 39).
Data are gathered from many resources	A variety of resources of data e.g. interviews, observations.(Creswell, 2007: 38)
Building comprehensive account of the phenomenon	The research synthesises the evidence gathered from different data resources about the different aspects of the phenomenon in order to provide a 'holistic account' of it (Creswell, 2007: 39).
The researcher as an instrument	The researcher gathers data directly by interviewing participants, engaging in and observing their activities, etc. (Creswell, 2007: 28).
Sampling	Purposive sampling (Hinnink et al., 2011:16)
Form of Data	Words or textual data (Hinnink et al., 2011:16)
Outcome	To extend our understanding of a certain social phenomenon, to provide details about a certain issue, behaviour etc. (Hinnink et al.,2011:16)

My study is qualitative in that it is naturalistic (i.e., it took place in the natural settings of the classroom), emic (i.e., aiming to approach the phenomenon from the participants' perspective), holistic (i.e., understanding the different contextual influences upon the participants' perceptions of the phenomenon), inductive (i.e., themes will be developed from the data collected), flexible (i.e., data collections methods are developed and changed in order to accommodate the children's needs and interests), interpretive (i.e., data analysis and interpretations are the researcher's interpretations of the children's constructions of their own realities), and synthesises the evidence from these different data sources. It is also qualitative in that the researcher is the instrument of data collection, collecting data by observing and talking to the children.

3.3. Case study

> 'all research – a case study or otherwise- begins with an inspiration or a hunch and it is this that leads to the journey of your research.' (Thomas, 2011: 112)

My study began with an observation that children often talked about their ICT-based activities as play. They associated play with technology. In the literature review, it was noted that limited studies have explored how young children perceive their activities with ICT in the nursery setting, and I wanted to explore this further. In addition, I was also interested in exploring the contextual influences on what came to be digital play, in the hope that this would help us understand the phenomenon of technology in early childhood education.

My interest in children's play and technology led to this case study of young children's perceptions of their experiences with ICT in three nurseries, grounded in an ethnographic approach. There are a variety of definitions of case study (see Flyvbjerg, 2011; VanWynsberghe and Khan, 2007; Yin, 2009). Different definitions emphasise different aspects of the case study research process. For instance, Stake (2005), Flyvbjerg (2011) and Thomas (2011) regard case study inquiry less as a methodological choice (i.e., procedures about methods of data collection), but as having a profound concern with identifying the case to be studied, the focus. As the following quote suggests, case study is 'defined by interest in an individual case, not by the methods of inquiry used' (Stake, 2005: 443). However, Yin (2003), Creswell (2007), and Gillham (2000) regard it as a methodology or a strategy of inquiry in its own right. Regardless of the differences between authors, a common concern is to identify the case or the unit of research interest, and to place its context in time and space (Flyvbjerg, 2011; Thomas, 2011; VanWynsberghe and Khan, 2007). This means that the concern of case study is 'its bounded system' (Creswell, 2007: 73). Other common points in case study include identifying the 'complexity' (i.e., processes, contextual influences, events and experiences that illustrate it, etc.) of the case explored, and ensuring that the methodological choices are not decisive in 'defining' the case (Simons, 2009; Thomas, 2010). This leads Gall et al. (2003: 436) to define case study as 'the in-depth study of instances of a phenomenon in its natural context and from the perspective of the participants involved in the phenomenon'. Stake (2005:

444) corroborates this by stating that qualitative case study aims to capture the 'experiential knowledge of the case' and pays 'close attention to the influence of its social, political, and other contexts'. It is this kind of 'experiential knowledge' of ICT from young learners' perspectives in both Stake and Gall et al that my study aimed to capture. My choice of case study will be further explained below.

3.3.1. Types of Case Study

It should be noted that there are many criteria for classifying types of case study inquiry (see table 5), some of which are discussed below.

Exploratory case studies help to advance our understanding of the phenomenon under investigation, or to generate hypotheses that can be tested and investigated in more detail (Yin, 2003: 6). In this kind of case study, the researcher does not possess a fully developed set of theoretical positions about the phenomenon, rather these would result from the inquiry (Hammond and Wellington, 2013: 17-18). Explanatory case studies are the most appropriate strategy to provide answers to 'how' and 'why' questions, and often start from hypotheses which are to be tested (Yin, 2003: 1). Descriptive case studies aim to offer an in-depth description of an event given that this event is less-than well-known or understood as in the case of researching the experiences of a marginalised group (Hammond and Wellington, 2013: 18). It is also useful in providing information about 'who', 'what', 'where', 'when', and 'how' aspects of the inquiry (Woodside, 2010: 11).

Stake (2005) classifies case studies according to the researcher's interest in the case(s) under study. A single intrinsic case study is carried out when the researcher is interested in an individual case and aims to know more about it (Stake, 2005: 445). This kind of case study selects the case as of interest in itself (ibid, 445). A single instrumental case study is one where

the case under study is explored in order to *provide more clarification or information* about an *event* or *phenomenon* of interest (ibid, 445 my emphasis). Thus, the case is a means of understanding something broader.

A multiple or collective case study is one in which individual cases may not be pre-selected but chosen in the course of the investigation as they present some elements of interest to the research (ibid, 446). As is the case with instrumental case study, these cases are studied in order to provide information that would assist the researcher in understanding the phenomenon of interest.

A single holistic case study focuses on searching the case as a whole rather than individual parts or units of it (Gray, 2004: 456). Examples of this type include hypothesis testing, and 'extreme' or 'unique' cases (ibid, 456). A single embedded case study contains a case with more than one unit of analysis (ibid, 456). For example, an exploration of the teaching system in a school may involve the teachers in different grade levels, teaching materials, pupils' views on teaching processes, and so on.

Multiple holistic case studies are useful when the aim is to increase the 'generalizability' or 'reliability' of the research (ibid, 257). For instance, a local authority has implemented a new approach to teaching using new technologies across schools in its region. Exploration of the implementation of this new approach could be addressed through holistic cases of different schools in the region.

Multiple embedded cases include multiple units of analysis in each case of the study, and can be helpful in keeping the research more focused (ibid).

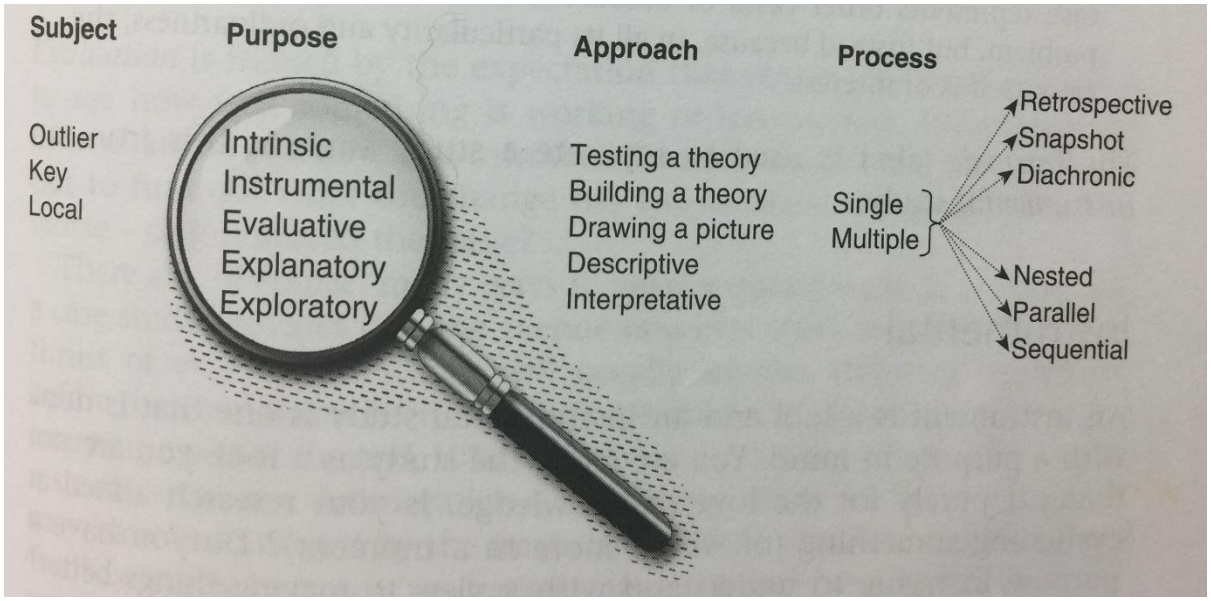
Table 3: the criteria for classifying case studies

Criteria of Categorising Case Studies	Types of Case Study involved
Aim of the research	Exploratory, Explanatory, Descriptive case studies
The researcher' intent	Intrinsic, Instrumental, Collective case studies
The number of cases and the extent of the depth of the investigation of each case	Single holistic, single imbedded, multiple holistic, multiple imbedded case studies

3.3.2. Defining the Case and its Boundary in My Study

One commonly encountered problem in case study is to define the case. This is never straightforward (Creswell, 2007: 76). In attempting to define the case in my study, I followed the framework offered by Thomas (2011, see figure 1 below) and its elements: subject, purpose, approach, and process.

Figure 1: specifying the purpose and other elements of case study (from Thomas, 2011: 97)



First, the subject: Thomas argues that (2011: 9) the case study 'is not a method in itself. Rather, it is a focus and the focus is on one thing, looked at in depth and from many angles.' In trying

to define/find the subject, Thomas (2011: 43-44) advises us to start with the research question of our inquiry. The argument is then that the research question will determine the subject of the study. In helping us to think this through, he suggests that the subject might be an outlier (i.e., a special case), key (i.e., a key phenomenon) or local (i.e., something the researcher is familiar with and has local knowledge about) (Thomas, 2011: 76). The examples of subjects he gives are a natural phenomenon (e.g., hurricane as a key event), a region (e.g., the Indian state of Kerala as an outlier case of unexpectedly long life expectancy) and an individual not progressing in reading (p.77-87).

Using Thomas' language, this first thing I did was to ask myself whether my case was a local case or not. The case in my study was a local knowledge case to the extent that I researched three nursery settings which were near to where I lived and in an area that I had come to know. I had some experience of the university in which the parents of the children attending case study setting W worked or studied. However, it was not strictly a case of local knowledge. I felt I was a visitor to this country and, although I had lived here for some time, I cannot be said to be an insider. Furthermore, I had no particular knowledge of the nurseries I was studying and only a limited professional background. What I can say is that gaining access was particularly important for me, and logistically I had to work locally.

If my case study was only partially a local knowledge case, was it an outlier case? The three case settings were chosen as they would provide typical examples of ICT experiences, not because they were outliers. As I came to know the three case settings and researched them, I came to understand their differences and particular characteristics. For example, as discussed in the sample section (see page 137), Setting S had newer forms of ICT, at the time of the research, including iPad, projector, remote controlled toys. Setting B was more restricted in terms of ICT equipment. The W setting was neither well nor badly resourced. Therefore, in my

case, there was something special about all three cases without any of them being seen as an outlier.

Again, if my cases were only partially local and not outliers, were they key cases? As my fieldwork progressed, I could see that all three settings could be key cases to help in understanding the phenomenon of digital play. Children in these settings generated instances of ICT use and described their interactions with ICT as play. Another key common characteristic was that these nurseries followed pedagogical practices that included a mix of structured activities and free play. Children used the various ICT resources in their free play with a very limited intervention from the practitioners in all three cases. What integrates the cases and is common to them is that they all gave me access to children's experiences of technology and showed me the importance of something that I later on called digital play. As they shared these key characteristics, I felt able to later present a cross-case analysis.

Second, the purpose: Thomas (2011) suggests five purposes for case study: intrinsic, instrumental, evaluative, explanatory, and exploratory (see types of case study above). Here, the researcher should ask whether they want to study the case itself (i.e., intrinsic) or an issue (i.e., instrumental), covering what is called the researcher's intent (Creswell, 2007; Stake, 2005; Thomas, 2011). Here, my purpose was to access instances of ICT in the early childhood setting in order to explore and understand how young children perceived their use of technology. This was designed as an instrumental study – i.e., my purpose for embarking on the research was to explore this one particular issue. As with subject, the different purposes are not entirely discrete. For instance, at times in my fieldwork, I became intrinsically interested in some events that I had not necessarily set out to look for. This, for example, happened when I took part in children's sports centre visits. Clearly, my frame of reference was exploratory. So although I had some idea of looking at instances of ICT, it was not with a specific hypothesis

in mind. Rather, it was to follow children's activities with technology and see where these lead. So my purpose were also exploratory and explanatory.

Third, the approach: according to Thomas (2011) the approach might be identified as testing a theory, building a theory, drawing a picture, experimental or interpretative. When the researcher aims to build a theory, they are generating and developing a framework in order to illustrate an issue without a previous commitment to a pre-formulated concept; that is, a bottom up approach. In contrast, when the researcher already has some ideas about an issue, they might wish to work within an existing frame of reference; that is, testing a theory (a top-down approach). With regards to the third approach, drawing a picture, here the approach is illustrative, one in which the researcher brings the 'subject to life' by enabling the reader to relate or share the experience of the phenomenon by drawing on their own knowledge and personal experience (Thomas, 2011: 119). To do this well, there has to be an analysis accompanying the illustration. With regards to the fourth approach, the interpretative one, this aims to provide an in-depth and rich understanding of the 'multifaceted nature of the phenomenon' through deep immersion in its environment (ibid, 124). This approach is usually an ethnographic one as the case study researcher tries to get to the 'heart' of the case or issue by understanding the perspectives subjects have on that issue (ibid, 125). The final approach is an experimental one in which the researcher tries to establish some form of causality between groups of variables and outcomes (ibid, 130). This is often undertaken as a classic experimental design.

One difficulty in breaking down categories in this way is that these five approaches are not easily separated in practice. For example, an illustrative case study may also be analytical and have elements of interpretivism and theory building. Indeed, in my approach there was an overlap. Central to my approach was interpretivism, because I wanted to understand children's

perspectives on their experiences with ICT in the natural setting using ethnography (see section 3.3.3.). What is critical about the interpretative approach is understanding the world through the eyes of the participants, in my case the perspectives of young children. However, through that goal I was able to build up the concept of digital play, building a theory from the data set, and illustrate use (i.e., building a theory from the data set) so that the phenomenon of digital play could be better understood. However, my approach was also illustrative in that it sought to bring the 'subject to life' by offering experiential knowledge about the phenomenon of digital play. I offered rich episodes/scenarios of ICT-based activities which depicted children's interactions with peers and friends, ways of managing their disputes, defending their play, negotiating their wishes, and so on. This type of knowledge conveys meaning to the reader and interested parties by helping them to relate to the concept of digital play by drawing on their own knowledge and experiences. If I had to foreground my approach, I can say it was interpretivist case study, but it was interpretivist case study that led to two other approaches: an illustrative approach and a more theory building approach.

Fourth, the process: the way of going about doing case study. This includes the 'style and manner' of the case study (e.g., whether the case is one or several settings/individuals, and whether all cases are done at once or sequentially, and whether some elements of the case are examined or looking at past events) (Thomas, 2011: 137). Here, what is important but challenging is that the case study researcher should set up boundaries in terms of time, events and processes (Creswell, 2007: 76). This involves deciding on whether the case is studied within one setting or across different settings.

In my study, ICT-based activities were studied in three settings in order to broaden my perspective on play and at least at an intuitive level achieve greater reliability for my findings (i.e., the same phenomenon could be viewed in different settings). Of course, when I planned

my study I was open to the idea that I would see different things in these settings, but it was the similarities that struck me. This choice of three settings meant that it was multiple or collective case study (Stake, 2005). However, the focus of my investigation was not on the systems but on the instances of ICT-based activity. Instances were bounded not simply by place but by time. Each started when a child or a group of children used an ICT item, and ended when they were instructed by the practitioner to join in another activity or when that child or that group left the activity and started doing another activity. Hence, the duration and location of these activities depended on children's preferences and where they chose to carry out the activity.

A case study that integrates data from different locations is called a cross-case analysis (Thomas, 2011: 141). The benefits of cross-case analysis were that I was able to accumulate instances of ICT-based activities from three nurseries. This strengthened the analysis by addressing the issues of replicability and reliability. If I had presented three separate cases, I would have lost the overarching focus on my topic of interest. Of course, there are some disadvantages in not treating the cases separately. One such disadvantage is that I missed opportunities to contrast settings. However, this was not ignored. Firstly, the reader is able to locate the context of the instances of ICT use I cite in the analysis section as each is identified by nursery, children involved and date. Secondly, I do draw attention to contextual differences where noteworthy. For instance, in setting S children had a whole group activity in which they watched multimedia stories on a big screen. The content of this activity was chosen by a child. This did not happen in the other two nurseries. The experience in S setting arguably made gender a more pronounced issue. Overall, the benefits of doing cross-case analysis outweighed the disadvantages.

In terms of investigation of sites, I can finally describe the case study as sequential in that I had finished my fieldwork and data collection in the W setting and then moved to two further settings.

To summarise the subject of my case study was key and local. The purpose was instrumental, exploratory and explanatory. The approach was building a theory, drawing a picture (i.e., illustrative) and interpretative. The process was multiple and sequential.

Theorising Theory

Discussions of Thomas' approaches to case study raise questions about the nature of theory and theorising. As Abend (2008), Krause (2016) and Thomas (2011) have all noted, theory as concept can mean different things. For example, Abend (2008) finds seven contexts in which the word, theory, is used. The first is called contribution to theory, whereby the researcher links their empirical work to previous established ideas in a related field. The second is an explanation of a social event or phenomenon, perhaps a causal one identifying 'factors' or simply showing how things 'fit together' (Abend, 2008: 178). The third aims to offer 'an original 'interpretation,' 'reading,' or 'way of making sense' of a certain slice of the empirical world.' (ibid, 178) The fourth explores the meaning of a text, how the thinking of that text's author developed and how it can be related to their ancestors and contemporaries. The fifth is a world view or perspective from which the researcher sees and interprets a phenomenon (ibid, 179). The sixth refers to 'accounts that have a fundamental normative component.' Such normative theories as feminist theory and critical theory reject value-neutral sociological theory (ibid, 180). The seventh refers to the empirical or philosophical study of certain features of a situation or problem encountered in the field of sociology (e.g., the problem of agency and structure) (ibid, 181).

Comparing my research to these different meanings, the focus of my research seems to be more on the second and third: the idea of providing an in-depth reading of children's ICT-based activities (i.e. the third) and the idea of developing an explanation of digital play based on the data set (i.e., the second). My research definitely is not about causal relationships, is not about normative theories, it is not about the phenomenology of the researcher, it is not about exploring the meaning of a text, nor is it about a contemporary sociological problem.

Finally, discussion of theory leads to a discussion about theorising. Swedberg (2016) notes that not many social researchers talk about theorising, and when they do, they tend to bundle it up with ideas about theory. Theorising as defined by Swedberg (2016:5) is the process of constructing a theory; that is, 'the actual process that precedes the final formation of a theory'. Swedberg (2016) advises us as researchers to pay more attention to theorising, and provides some steps when theorising.

The point about theorising and theory in Swedberg (2016: 6-7) is that theorising belongs to the development of insights (i.e., 'context of discovery'), and theory to justification whereby these insights are transformed into hypothesis and tested (i.e., 'context of justification'). The context of discovery starts with the fieldwork and collecting data about an event in order to discover something new about it.

My research focuses on the process of discovery of a concept of digital play, and although justified through marshalling of data from case study schools, as with all qualitative research generalising will only be shown, or not shown, in other case studies. Following Swedberg's guidance (2016), the first step of theorising starts with paying close attention to the data. This raises issue of induction and deduction. When the researcher already has some ideas about an issue, they may wish to work within an existing frame of reference; that is, testing a theory (a top-down or deductive approach). Here, I can say I was not trying to test a theory or establish

a causal relationship between a set of variables and outcomes (i.e., I was not following deductive reasoning). In contrast, an inductive approach is a bottom-up approach where the researcher gathers data and then aims to establish some generalisations or tentative theories about that phenomenon (Hyde, 2000). As discussed above, my study was largely inductive although it is important to stress that inductive methods are always shaped by an object of interest, and in my case I was pre-sensitised by the concept of digital play via literature review. However, I can say, following Swedberg (2016: 9), that I started my fieldwork by collecting data about the phenomenon through different methods, and without any 'pet idea' or 'big intuition'. According to Swedberg (2016: 10 emphasis added) once again, these observations indicate something new or unexpected about the event, this can be given a '*new name*'. at this stage, I would not say I came with a completely new concept, in developing the concept of digital play, but I was able to develop the concept.

Swedberg (2016: 11) suggests that for developing a 'full theory', the researcher should not stop at the stage of developing a new concept or improving an existing one. He suggests several tips for pushing ahead: one of which is to find out whether the phenomenon is analogous to something else. Here, I followed this tip by comparing the concept of digital play to traditional play and play with non-digital objects. By doing this, I found similarities in issues such as friendship and ownership and I was better able to identify the distinctive nature of play with technology which was its strong appeal.

It is never easy to describe how research moves from observation, data collection through to theorising and theoretical categorising as the steps taken often feel intuitive. However, abduction appears a useful label to name the process of generating 'ideas, tentative "theories," that serve as hypothetical explanatory concepts' (Thomas, 2010: 577). A key moment in my study came with the realisation that children were using the word play in the context of

technology use. From that point on, I focused on looking at the use of technology around the concept of digital play.

3.4. Advantages and Disadvantages of Case Study

3.4.1. Advantages of Case Study

The main advantage of case studies, according to Yin (2003: 1), is its potential to represent a rigorous research strategy when the researcher:

1- is concerned with 'how' and 'why' questions, as well as questions that are intended for 'exploratory' and 'descriptive' purposes.
2- has no, or 'little control' over the phenomenon under investigation
3- concentrates on 'contemporary phenomenon within some real-life context'

In my study, the case study strategy was helpful in assisting me in exploring the phenomenon of ICT-instances '*in action*' as they happened among the children (Murchison, 2010: 4, emphasis added). This exploration involved participant observation, though as an outsider I had no control over the activities, the direction of these activities or their length. Instead, I flexibly explored and observed the phenomenon as it happened in the settings.

Another advantage of case study is that they assist the researcher in maintaining the 'holistic' and 'meaningful' attributes of the phenomenon under investigation (Yin, 2003: 2). Adopting a case study approach allowed me to explore children's perceptions in the natural context, observing their interactions and on-going events, capturing their intentions behind their actions, exploring their meanings they attached to their activities, and documenting situations surrounding their engagement that shaped their perceptions and experiences of ICT. Furthermore, case studies have the potential to collect evidence from a variety of data resources

(Simons, 2009; Yin, 2003 see pages 129-134). In addition, it allowed me to tailor the period of research according to the available time scale, and offered the possibility to explore additional unexpected events that helped in further understanding the case (e.g., instances of conflict helped to shed light on children's agency) (Simons, 2009: 23).

3.4.2. Disadvantages of Case Study

Data obtained by case study are criticised for being subjective (Simons, 2009: 4). They are subjective in the sense that they represent the researcher's interpretation and understanding of the phenomenon grounded in the participants' understandings of it. Hence, case studies are more susceptible to researcher's biased views and interpretations, than other research strategies such as surveys and experiment, and lack 'systematic' procedures of conduct (Yin, 2003: 10). However, these problems can be overcome by triangulation of data resources, (see pages 149-151 where reflexivity and exploration of trustworthiness were explored).

The second major problem when undertaking a case study research is that of generalisability (Yin, 2003: 10). To address this problem researchers are advised by Yin (2003: 10) to aim for 'analytical', not for 'statistical', generalisation, in which the researcher is concerned with generalising to 'theoretical' stances. In my study, the problem of generalisability was discussed, and it was concluded that the researcher should provide rich information about the phenomenon so that the reader and other researchers are able to decide on whether, or which aspects of, the findings are applicable to their settings (Guba and Lincoln, 1985).

3.5. Ethnography

3.5.1. Introduction: The Origin of Ethnography

The origin of ethnography comes from 'the Greek words ethos (people) and graphie (to write)' (Marvasti, 2004: 36). Hence, the meaning of the term 'ethnography' is to explore, portray, describe and record a people's culture (Hancock, 2002; Harrison, 2014). Ethnography is 'an approach to social research based on the first-hand experience of social action within a discrete location in which the objective is to collect data which will convey the subjective reality of the lived experience of those who inhabit that location' (Pole and Morrison, 2003: 16). A very important concept in ethnography is fieldwork. Fieldwork is so inherent in ethnography that it is sometimes used to refer to ethnography (Whitehead, 2005: 3). It entails 'the disciplined study of what the world is like to people who have learned to see, hear, speak, think, and act in ways that are different' (Spradley, 1980: 3). It is a process that requires the researcher to immerse themselves in the social setting of the participants, engaging in their socio-cultural activities, interacting with them, and observing (Berg and Lune, 2012: 197).

In this section, a brief discussion of the nature of research in early years will be firstly presented. Secondly, a detailed account of the essential philosophical and methodological assumptions of ethnography, along with a discussion of its research techniques will be provided. It will be shown that ethnography as the methodology of this study encapsulates within it the processes and means of capturing the subjective meanings of the world of the participants. Thirdly, methods of the present study will be addressed, demonstrating the potential for data collection. Fourthly, the setting of the study and participants and my research role in the fieldwork will be discussed. Fifthly, a critique of the methodology of ethnography will be presented. Finally, the rigour of qualitative research will be addressed in relation to the

conduct of this study, and the ethical considerations of this study will also be addressed later on.

3.5.2. The Nature of Research in Early Childhood

Early-years researchers have adopted ethnography as a resourceful methodology for exploring children's lived experiences (e.g., Christenson, 2004; Corsaro, 1985; James, 1996; Mandell, 1988). However, ethnographic research with young children is problematic, for example, issues of power imbalance between the adult researcher and the child, and this may deter researchers from examining children's perspectives (Clark, 2005: 491).

The traditional view of children conceptualises them in terms of their future potential (i.e., future adults) (Morrow and Richards, 1996: 93), and positions them, for the time being, in a lower status to adults. They were perceived in the process of 'becoming' adults or 'adults in the making' (Harden et al., 2000: 3). Some approaches to research in the field of traditional psychology (e.g., experimental research, laboratory measurement, and strange situation test) treated children as objects of research (i.e., a potential source of insightful information on their development), with the inevitable result that the research is done on children (see Woodhead and Faulkner, 2008).

Nonetheless, profound changes when studying children have occurred in fields such as sociology (Christensen and James, 2008), education (Formosinho, 2004), and health-related research on children (Docherty and Sandelowski, 1999). The new paradigm of the sociology of childhood conceptualises children as social actors, actively shaping their lived experiences (e.g., Christensen and James, 2008; James and Prout, 1997). This new conceptualisation of children asserts that the best source of information on children's lived experiences is the children themselves (e.g., Brooker, 2001; Christensen and James, 2008; Corsaro, 1997; Darbyshire, 2000; Hendrick, 2008; Scott, 2008; Spence and Scott, 2005). Thus, research no

longer collects data on or about children, but from them (Docherty and Sandelowski, 1999: 177). Accordingly, research is done with and/or by children rather than on or about them (Darbyshire, 2000; Kellett et al., 2004). Hence, there is an increasing orientation not only toward acknowledging children as right-holding participants with their own voices on the world, but also as co-researchers or researchers conducting their own research (e.g., Alderson, 2001; Kellett, 2005; Mallett, 1999).

These fundamental developments, as presented in the UNCRC and the new sociology of childhood studies, underpin a 'rights-based' understanding that 'children are citizens-in-the-making with concomitant rights and responsibilities' (Darbyshire et al., 2005: 468). Thus, a methodological and theoretical shift in research involving young children has occurred. It is now no longer acceptable to exclude young children from research based on their age, abilities to provide their views and explanations, or vulnerability (Darbyshire et al., 2005: 468), and there is a growing awareness of the need to find creative ways for actively including them in the research (Formosinho and Araujo, 2006: 24).

Participatory methods came to light in the early 1990s with a re-evaluation of children's position in the social process of research (Gallacher and Gallagher, 2008: 500). Rather than viewing children as 'objects of study' (Grover, 2004: 84), the participatory research approach includes a variety of techniques (e.g., drawing, dancing, photography, etc.) that are concerned with 'actively involving research subjects in the construction of data' (Gallagher, 2008: 137) (i.e., producing data that reflect their own experiences, Veale, 2005: 254).

The child centred methods (e.g., drawing, structured activities, etc.) are the research techniques that 'place the voices of children, as social actors, at the centre of the research process' (Barker and Weller, 2003; Mauthner, 1997), empowering children to express their ideas and perceptions in relation to whatever matter is being researched. These methods capitalise on

children's 'preferred ways of communication' (Barker and Weller, 2003: 36), and are an important step towards addressing the unequal adult-child power relationships (Barker and Weller, 2003; Mauthner, 1997). Child-centred practices could also be widened to make children active at the data collection stage of the research. For instance, interviewing children about photos they themselves take can be a method to support participatory research (Hurworth, 2003).

It has been noted by many researchers (e.g., Hill, 1997; Holland et al., 2010; Gallacher and Gallagher, 2008; Punch, 2002b) that participatory methods are no more desirable or better than other methods, and that participatory research is no better than (or more desirable than) other kinds of research:

> The value and appropriateness of any one method depends on the purpose of the research, so that for certain types of study it is entirely appropriate not to include the child's perspective, whilst in others it may be apt or practical only to include that perspective indirectly. (Hill, 1997: 172)

Punch (2002b: 323-324) invites researchers to question what are called child-centred methods, and to critically examine them for their appropriateness to the children's competencies, ethical suitability, and their implication for the research process in the field and for subsequent data analyses. Furthermore, Punch (2002b: 332) suggests that research with children is different to research with adults because of adult assumptions about children and positioning them as marginalised. In addition, Punch (2002b) and other researchers (e.g., Gallacher and Gallagher, 2008) note the contradiction in the social studies of childhood between viewing young children as competent, and at the same time in need of empowerment through child-friendly methods that respond to their needs:

> The very notion of 'empowerment' implies that, without aid and encouragement from adult-designed 'participatory methods', children cannot fully exercise their 'agency' in research

> encounters. In this way, advocates of 'participatory methods' risk perpetuating the very model that they purport to oppose. (Gallacher and Gallagher, 2008: 503)

Gallacher and Gallagher (2008: 500) critically examine the concept of participation and the related claims that underpin the participatory research with children. They point out a range of contradictions (e.g., children as having intentional will and at the same time being in need of empowerment, the conception of empowerment as a transferable commodity, disguising participatory methods with ethnography) that advocates of these methods may wish to avoid (Gallacher and Gallagher, 2008; Gallagher, 2008). In response, they suggest an attitude of methodological 'immaturity' (i.e., 'position of ignorance' or incompetence and fallibility) that calls for the spontaneous development of 'an emergent subjectivity' unfolding in the present events in the field based on 'experimentation, innovation and 'making do'' (i.e., the research design is flexible and responsive to the dynamics of the setting) (Gallacher and Gallagher, 2008: 513).

Perhaps one of the most important strengths of ethnography is that it requires the researcher to suspend their personal perspectives on the phenomenon studied, adopting instead a flexible approach in order to achieve a valid understanding of the research participants' cultural and social experiences (Corsaro, 1981; Denzin, 2009; Mayall, 2008).

3.5.3. Theoretical Understandings of Ethnography

The term 'paradigm' means 'a set of philosophical assumptions [ontological, epistemological, and methodological] about the phenomena to be studied, about how they can be understood, and even about the proper purpose and product of research' (Hammersley, 2007). In what follows, the paradigm (i.e., worldviews on reality) (Guba and Lincoln, 1994; Rossman and Rallis, 2003) of the ethnographic approach, consisting of its ontological, epistemological, and methodological orientations toward the phenomenon, will be addressed. This discussion will

show how these philosophical assumptions embodied within this methodology influence and shape the inquiry on many levels, not least the choice of methods of data collection and the subsequent data collection and its forms.

3.3.3.1. Ontological Assumptions of Ethnography

The word ontology refers to the nature of reality and its attributes or qualities (Creswell, 2007; Saunders et al., 2007; Spencer et al., 2014). It concerns beliefs about whether the phenomenon is objective and the generalizability of knowledge (Spencer et al., 2014: 2).

Subjective Multiple Perspectives

In qualitative research, the focus is on exploring a constructed "reality" (Lincoln and Guba, 1985: 299 inverted commas in original). The core ontological assumption of qualitative research is that 'social life is the product of social interactions and the beliefs of the social actors' (i.e., subjectivism) (Bahari, 2010: 23, see also Atkinson and Hammersley, 1994). Ethnography endeavours to understand culture (i.e., shared learned knowledge) from the native standpoint (Spradley, 1980: 4-5). That is, it attempts to study the cultural meanings that the research participants ascribe to their lived experiences, events, behaviours, and actions as they act and interact in their setting (Gobo, 2008; Fetterman, 1989; Pole and Morrison, 2003; Siraj-Blatchford, 2010; Spradley, 1980). Furthermore, in contrast to classic approaches, ethnography nowadays recognises the differences within a cultural group and seeks to explore the different experiences of its members (Spradley, 1979: 12). Although members of a cultural group may have shared knowledge and meaning of reality (i.e., inter-subjectivity) (Whitehead, 2004: 9), they tend to construct reality differently based on their differing ways of understanding and experiencing the world. Hence, capturing the insider's perspective on reality requires the awareness and acceptance of 'multiple realities' (i.e., different subjective perspectives) (Creswell, 2007; Fetterman, 1989). This recognition of participants' differing perspectives is

helpful in facilitating the researcher's understanding of the intentions and meanings they ascribe to their actions and behaviours. That is, acknowledging the presence of multiple perspectives assists the researcher in understanding 'why people think and act in the different ways they do' (Fetterman, 1989: 31).

3.3.3.2. Epistemological Assumptions in Ethnography

Epistemology is concerned with ways of gaining knowledge about the researched phenomenon, and the relationship between the researcher (i.e., knower) and the participants (Spencer et al., 2014; Whitehead, 2004). Fundamentally, ethnography strives to achieve an understanding of how in a setting members make sense of their lived experiences in the native circumstances of their setting (Berg and Lune, 2012; Cohen et al., 2011; Marvasti, 2004; Spradley, 1980). Attempting to gain the insider understanding, ethnography is considered as a learning, discovery-oriented process (Whitehead, 2004: 18). In this process, the researcher, initially with limited knowledge of the setting's cultural practices, gradually becomes a knower about its culture and its members' meanings of their world as they gain familiarity with the members' activities through the direct experience of fieldwork (Whitehead, 2004: 18).

Emic Perspective

Emic and etic perspectives refer to the different perspectives of the researched and the researcher respectively. The etic perspective is sometimes called 'the external, social scientific perspective on reality' (Fatterman, 1989: 32). In searching cultural and social events in a setting, as Pole and Morrison (2003: 4) suggest, ethnography aims to present an insider's perspective. This point (i.e., taking an insider's perspective) is 'paramount and takes precedence over, but does not ignore, that of the researcher' (ibid, 4). The insider's perspective on, and meanings of, a social and cultural phenomenon (e.g., customs, events, traditions, etc.) are uncovered by the researcher when they become a member or participant in the researched

group (i.e., an insider-like participant) (O'Reilly, 2009; Murchison, 2010). That is, by becoming involved in the activities alongside the participants in the natural setting, the researcher becomes increasingly familiar with the participants' ways of doing things, on-going activities, traditions, and social habits, comprehending their ideas, intentions, and motives for their actions.

Ethnographers normally approach the task of data collection from either of two positions, emic or etic (Fetterman, 1989: 32). In this study, I approached the phenomenon (i.e., exploring nursery-aged children's perceptions of their ICT experiences) from both perspectives, since both of them contribute to a more fine-detailed comprehensive understanding of the phenomenon than either of them could do on its own (Whitehead, 2004: 16). On one hand, although taking an emic approach might be time-consuming, it is invaluable in terms of securing the validity and efficacy of the data collected (Fetterman, 1989: 32). On the other hand, it is necessary to view the data through the lens of the etic perspective of the researcher, since it contributes toward better understanding of aspects of cultural group (Fetterman, 1989; Whitehead, 2004). For example, maintaining a degree of objectivity, the researcher may be able to compare the ideal (i.e., what research participants state they would do) to their actual actions and behaviours (Murchison, 2010; Whitehead, 2004). This etic perspective also assists in understanding explicit (i.e., knowledge that the participants can easily talk about) and tacit (i.e., the reasons for their own actions) aspects of the participants' culture, hence achieving 'emic validity' (Whitehead, 2004: 16, commas in original).

First-hand Knowledge

The ethnographic research is grounded in the first-hand investigation of the phenomenon in its natural setting (Atkinson, et al., 2001; Brewer, 2002). According to Murchison (2010: 12), ethnographic studies have been originally characterized by ethnographers 'being there' (i.e.,

conducting their research in the fieldwork). The ethnographic researcher is an actively engaged observer, taking part in the social cultural practices and daily activities of the people being studied, and collecting different forms of data through their 'all senses' (Murchison, 2010: 13-14). Thus, the researcher's 'direct experiences become the lens through which ethnographic data or information is collected' (ibid, 17). That is, the research learns to view the world from the native point of view (i.e., from their perspectives) (Spradley, 1980: 4).

The Ethnographer as an Instrumental Tool and a Learner

The ethnographic researcher adopts some roles that help them to be in close contact with research participants. The aim of this sensitive participation is to collect data that are deemed to be relevant to the researched, to clarify 'locally relevant understandings and ways of operating', and to illuminate the different contextual influences on this group's social actions and on their meanings of these actions (Murchison, 2010: 12). The ethnographer's 'own inquiring experience' is the instrument of data collection (Stewart, 1998: 6). The researcher is not completely independent in the research field but relies on the participants. Thus, the researcher is a learner acquiring information from the experts (i.e., the research participants) about their meanings of the researched phenomenon (Gobo, 2008; Murchison, 2010; Spradley, 1980). By adopting a proactive learner role and participating in the normal activities alongside the research participants, the researcher not only experiences their culture, social relationships, and activities first-hand, but also becomes able to gather knowledge about their subjective perceptions of these events and about the contextual influences upon their meanings.

Ethnography as a Holistic Approach: Thick Description

Ethnography entails a 'thick description' (Geertz, 1973: 10), which provides rich contextual details that convey the "flesh and blood" aspects of reality (Boocock and Scott, 2005: 37,

inverted commas in original). The holistic approach entails covering 'as much territory as possible about a culture, subculture, or program' (Fetterman, 2010: 11). Although ethnography may not be able to do all of that, it attempts to understand the complexity of the phenomenon by exploring the influences of wider multiple settings or contexts that make it complex (i.e., social, cultural, historical environments) (Whitehead, 2004: 15). The complexity of the human realities is untangled through strategies such as thick description, flexibility in planning, adapting and/or creating new methods, and adopting the position of a proactive learner. In the process of maximising their learning about the setting, the ethnographer flexibly and creatively alters and adapts their own methods and/or creates new methods according to the follow of natural events (Whitehead, 2004: 20). The ethnographer is a 'bricoleur' (Leavy, 2014: 5) who has the freedom to be creative in the research process in order to enhance their understanding of the phenomenon (Trent and Cho, 2014:13). The complexities of human experiences are uncovered through thick descriptions of the social, cultural setting and its written verbal or signal linguistic systems. Through a process of richly 'thick description', the researcher is able to engage with the meanings of the actions, gestures, signals, and other forms of behaviours of the participants (Geertz, 1973: 10, inverted commas in original). Drawing on Gilbert Ryle (1971), Ponterotto (2006: 539) contends that a thick description attends in detail to the context in order to gain knowledge of the motives of participants for their own actions, whereas a 'thin' description would describe the phenomenon at surface level. Hence, thick description provides the readers with a 'thick meaning' of the reported findings (i.e., meaning which communicates clear results that are grounded in the insider's understanding of their own actions) (Ponterotto, 2006; Ponterotto and Grieger, 2007).

Ethnography as an Iterative Process

By its very nature, ethnography is a process of learning from the researched people and discovering the meanings of their actions and experiences from their point of view. This process of learning requires spending extended periods of time in the field, observing events, engaging with the participants, inquiring, and making field notes. The researcher's attitude is that of 'almost complete ignorance' (Spradley, 1980: 4), intending to discover new information through data collection processes or 'learning episodes' (Whitehead, 2004: 18). While questions are derived from previously observed events, methods are framed in such a way to inform new observations and complement already data collected (ibid, 18). Through this iterative process, methods of data gathering are refined based on field experience so that research methods are chosen for their potential in maximising the learning process (ibid, 18).

3.5.4. Summary

These ontological and epistemological assumptions of ethnography were discussed. It was demonstrated that these world views influence what counts as knowledge of the phenomenon and how to obtain this knowledge. From the ontological perspective, ethnography collects subjective knowledge that portraits the world of meanings of the participants. From the epistemological perspective, this subjective knowledge is collected by ethnographic procedures such as adopting an emic perspective, experiencing participants' world first-hand, learning from them, collecting contextual information, and spending time with the participants.

3.5.5. Methodological Assumptions in Ethnography

3.5.5.1. Participant Observation

While the degree of observation and participation in the setting may vary from detached observer to a full member of the group, ethnography relies heavily on participant observation

(Gobo, 2008: 5). Participant observation is about experiencing the other's way of life: '*experiencing*' refers to 'what is gained through participant observation', since it is 'founded on first-hand experience in naturally occurring events' (Wolcott, 1999: 46 emphasis added). Unlike other research methods such as questionnaire and surveys, the participant observation is an internal method in the sense that rather than being developed in advance to the research, it is flexibly applied, developed, and adapted while conducting the research process in the field (Laurier, 2010: 118).

'Rather than *studying people*, ethnography means *learning from people*' (Spradley, 1980: 3 emphasis added). Lofland et al. (2006: 17) define participant observation as a 'process in which an investigator establishes and sustains a many-sided and situationally appropriate relationship with a human association in its natural setting for the purpose of developing a social scientific understanding of that association'. The fundamental assumption of participant observation is that the researcher can well understand participants' meanings, actions and motives by learning about, experiencing of and engaging in their activities taking place in the natural environment of their setting (Tedlock, 2000: 467-470). Therefore, this active nature of participant observation (e.g., learning from others) assumes some role and activity on the part of the researcher. On a continuum the extent of the researcher' involvement in the setting of participants can range from marginal or nonparticipant detached role (i.e., uninterested observer) to complete participation where the researcher becomes a member of a group (Gobo, 2008; Hessler, 1992; Jorgensen, 1989; Spradley, 1980). According to Emond (2005: 125), performing either of these extreme roles (i.e., non-participant or complete participant observer) can be problematic in research with children in early childhood settings. On one hand, Pelto and Pelto (1978: 69) suggest that the fieldworker should not be a mere observer but should make an effort to gain information about activities in order to strengthen their observations. The pure observational stance in the setting may prevent the '*student*' (i.e., the researcher

(Spradley, 1980: 4 emphasis added) from learning from the experts (i.e., young children) (Emond, 2005: 125). The mere observant can also be a source of disturbance to the children leaving them, for instance, wondering about this strange person watching them (ibid, 125). On the other hand, taking on a complete member role can disturb the normal routine activities in this setting (e.g., influencing children's activities directly or indirectly) (ibid). Some researchers (e.g., Aubrey, et al., 2000; Harden et al., 2000) see participant observation in the cultural context of early education as problematic especially when the adult researcher is trying to gain access to young children's culture and activities. This difficulty may be due to the fact that children are so accustomed to viewing 'adults as different' (i.e., teachers with authority) that they may not accept the researcher as a member in their group or behave normally as if the researcher is not present (Harden et al., 2000: 3). A further difficulty is related to attempts to become a full member of young children's culture by adopting a child status. But even when trying to be a child, young children would still perceive the adult researcher as an adult (see Christensen, 2004; Mayall, 2008).

In negotiating the above difficulties, I took on multiple identities throughout the fieldwork. Some children described me as 'my best friend', others as 'friend', and the practitioners viewed me as an adult who was expected to endorse the rules of the setting (e.g., tidy-up, good listening, discouraging children from breaking the rules, etc.). Throughout the fieldwork process, Fetterman's (2010) definition of participant observation was useful. Fetterman (2010: 37) defines participant observation as follows: it 'combines participation in the lives of the people under study with the maintenance of professional distance that allows adequate observation and recording data'. In this study, I participated in children's routine activities indoors and outdoors, observed and recorded the activities of research interest, and took field notes either immediately after an event or as memos that would be written in detail after leaving

the setting. My research role(s) and negotiations of these roles will be explained further when discussing ethical considerations.

There is no clear-cut point that separates participant observation from ethnographic interviewing. This methodological problem originates from two reasons. First, the participant observational method can include many techniques for data collection including interviews ranging from informal conversations with participants to formal structured interviews (Jorgensen, 1989). Second, in practising participant observation, the researcher listens to participants, talks to them, watches their activities, and joins in whenever it is appropriate in terms of maximising their understanding of the meanings these activities have for the participants. This blurs the line between observation and interview, since traditional participant observation 'always involves the interweaving of looking and listening, of participating and asking, and some of that listening and asking may be identical to intensive interviewing' (Lofland et al., 2006: 18). This was my experience as explained later (see section 3.10 page 115).

Participant observers, however, have been criticised for being selective (McNamara, 1980), but the researcher has to be selective if they are not to be overwhelmed by the variety of events taking place in the field. Furthermore, researchers undertaking ethnographic research with children can face issues relating to 'obtrusion', power relations and 'physical size' (Corsaro, 1981: 118). Mandell (1988) and Warming (2005) adopted the 'least-adult' role as a full member of children's world to tackle this issue of power. However, children still view the researcher as an adult even if they pretend to be a child (Mayall, 2008). The role that is adopted in this study is that which was adopted by Christensen (2004) and Mayall (2008). Rather than trying to become a child, I was aware of the power differences, and tried to negotiate them in the field.

I became the 'other' adult who is seriously interested in children's experiences and wants to learn from them (Christensen, 2004; Mayall, 2008).

3.5.5.2. The Nature of Ethnographic Interviews

The ethnographic interview is a '*speech event*' which is 'a series of friendly conversations into which the researcher slowly introduces new elements to assist informants to respond as informants' (Spradley, 1979: 85, emphasis added). Ethnography requires unstructured interviews that are sensitively reflexive in relation to the setting, developed during the research processes and incorporating the elements of its socio-cultural context (Marvasti, 2004: 56). According to Wolcott (1999: 44, emphasis added), participant observation 'is sometimes employed as an umbrella term to describe *everything* that ethnographers do, and indeed, that *all* on-site researchers do, in the field'. However, Wolcott (1999: 44) prefers to distinguish interview methods from participant observation. While the first part of the ethnographic enterprise is '*experiencing*' first-hand the research field alongside its members, interviewing is the other part of the ethnographic learning process in that it is active '*enquiring*' about the phenomenon in question (ibid, 47, emphasis added). Hence, the researcher learns children's meanings and perceptions of their activities, objects, actions, and other aspects of their culture, by asking them and listening to how they describe their own experiences (Harden et al., 2000; Spradley, 1979). That is, through this active inquiring, the children's interpretations of their own experiences are understood (Spradley, 1979: 6).

Spradley (1979: 59, emphasis added) has identified three main elements of ethnographic interviewing: '*explicit purpose*, *ethnographic explanations*, and *ethnographic question*'. First, the ethnographer informs the participant about the aim of the conversation, and flexibly directs the talk with the participant towards this aim (ibid, 59). Second, the researcher as a learner provides the expert participant with information about the research and the procedure of the

interview (e.g., recording, justifications for recording), encourages them to talk in their own terms, asks them to carry out some research activities such as drawing, and informs them about the type of ethnographic questions that the researcher intends to use (ibid, 59). Third, ethnographic questions, mainly descriptive, structural, and contrast questions, help the researcher to unpick the complex aspects of the participants' meanings and cultural knowledge (ibid, 60). In my participant observation, I carried out great many discussions with the children. In carrying these out, I was aware that these research instances needed to be adapted to the children's ways of expressing themselves, preferences, and needs. A detailed account of conversations I held is provided when discussing some techniques that were used below.

Conversations with Children: Issues and Strategies

There is a tendency in the research with children to use the term 'conversation' instead of the more formal term interview (e.g., Folque, 2010; Hill et al., 1996; Mayall, 2008). Perhaps, this term indicates the informal nature of discussions with children (Hill et al., 1996: 133). Conversing with children while doing their normal activities as they are naturally unfolding, or chatting with them after finishing these, would be an appropriate strategy to facilitate the researcher's learning about their 'emic knowledge' (i.e., the meanings of their activates) (Balen et al., 2006; Bulter and Green, 1998; Kelley et al., 1997; Marsh, 2012). As Mayall (2008: 109) argues, conversations with children are a way of learning from children about their knowledge and experiences, and about their ways of learning.

In these opportunistic conversations, some appropriate techniques are often used and are appropriate if they are 'respectful of children's agency but also aware of their dependency' and needs (Smith, 2011: 15). In this study, for example, the techniques of drawing and photography helped the children to share their knowledge of their own experiences by creating opportunistic conversations about what they were doing (see pages 93-97).

There are many epistemological and methodological assumptions about children's development and knowledge which undermine their participation in the research as participants. Children are suggestible (i.e., they may try to please the adult researcher and provide answers in a manner that accords with the researcher's expectations, Baker, 1996; Kellett et al., 2004; Mahon et al., 1996). In addition, children have limited knowledge and experiences, and, hence, may not be able to distinguish fiction from reality (Kellett et al., 2004: 331). There are also power relations in interviews between adult researchers and children which are 'likely to exacerbate the tendency to give public rather than private accounts in the interview setting.' (Harden et al., 2000: 13) Children may feel uncomfortable both talking to a 'strange' researcher and being interviewed in one-to-one session (Hill, 1997: 175). Furthermore, Howard (2010: 148) argues that on-task interviews with children can disrupt the flow of their activities. In addition, prior-to-an activity interviews are cognitively demanding in that children need to reflect, which includes remembering, imagining the situation, making decisions, and offering justifications (Howard, 2010: 148).

However, children are '*epistemologically privileged* in that they are better placed [than adults] to produce 'situated' knowledge that prioritise the importance of their everyday experiences.' (Balen et al., 2006: 31-32 emphasis added). This means that methodological sensitivity on the part of the researcher is required. By not interpreting young children's actions and experiences in 'adult terms', the researcher grounds their questions in children's own experiences and inquiries about meaningful events to the children using appropriate modes of communication with them (Hardman, 1973, Kellett et al., 2004).

Drawing

While drawing has been used by developmental psychologists for purposes of assessing the child's development (e.g., attachment, cognitive functioning), it is gaining greater currency as

a research tool for gaining insights into children's inner representations and perceptions of their lives (Merriman and Guerin, 2006; Veale, 2005). Accessing children's perceptions of their experiences or their 'frame of reference' requires an understanding of the child from within (i.e., 'from the inside looking out, rather than from the outside looking in', Bulter and Green, 1998: 3). In this regard, drawing as a creative activity is a way of externalising children's ways of thinking about something (Alerby, 2000: 207).

Drawing is a 'task-centred' activity that provides children with a medium for expressing their emotions in a manner that does not rely on verbal descriptions (James et al., 1998: 190). According to Hunleth (2011: 83, inverted commas in original), this method is increasingly gaining in popularity because of its 'child-like' character. That is, drawing is a normal common activity of children which they like, find interesting and fun, and feel comfortable about (Merriman and Guerin, 2006; Punch, 2002). Furthermore, it gives children time to express the ideas that they wish to express, and is a 'warm-up' or 'fill-in' activity for other research activities (Punch, 2002: 333-334). It creates an opportunity for children to gain familiarity with the researcher, and is more flexible than other methods such as interviewing in that children can have greater control over their ways of expression (Punch, 2002: 333-334). However, not all children are comfortable with this method, and, hence, may not perceive it as fun (Harden et al., 2000: 5). There is the risk of misinterpreting children's drawings (i.e., interpretation that does not correspond with children's meanings) (ibid, 4). It is time-consuming (Hill, 1997: 178). In addition, children's drawings are normally influenced by a range of contextual matters. For instance, in a study by Burkitt and Watling (2013: 222), children tended to depict more positive features in their drawings of the self when told the audience was someone familiar, and more negative features when told the audience was someone strange.

In my study, drawing was used in the context of informal discussions with the children. The children were asked to draw themselves at a computing activity. The choice of the computer was based on the fact that the desktop computer was available in all of the three participant settings and thus, all the participant children had the experience of interacting with it. The child's drawing was discussed, and conversations were audio-recorded and subsequently transcribed. The drawings stimulated the children to reflect on their feelings and the reasons for these feelings. Moreover, using this mode of data collection in conversations with the children proved fun, since it kept them engaged and interested (Hill et al., 1996: 133). In the process of interpretation of their drawings, it was the children's words about their drawings that made 'the data for interpretation' (Veale, 2005: 265). I gave the participant children paper, crayons and pencils, and left them to draw by themselves. Sometimes, the children expressed their wish to use my pen for drawing. And on other times, the children asked me to give them paper from my own notebook to draw on it. After finishing drawing, I gained the permission of the children to copy their drawings and then these were returned to them.

Photography

This is a method of visual data production that enables the children to 'record their own sense of realities' (Baker, 1996: 4). That is, photos taken by children are 'constructed' or 'made' by them to portray their subjective perspectives (Holm, 2014: 2-6). Photography is increasingly being used in researching children's experiences and perceptions in early-years education and care (e.g. Anggard, 2015; Barker and Weller, 2003; Clark and Moss, 2011; Dockett and Perry, 2005; Einarsdottir, 2005; Fasoli, 2003; Smith et al 2005; Young and Barrett, 2001). It is another way of facilitating the active involvement of young children in the production of research data that captures their subjective realities (Anggard, 2015: 4) as they actively choose 'what is meaningful for them to discuss in the interview' (Holm, 2014: 386). In all of these studies,

photos, either taken by the children or the researcher, have been used as a 'tool for discussion' (Young and Barrett, 2001: 147). However, this method does not rely on the verbal competencies of young children in that it is another way of self-expression (Anggard, 2015: 4).

Children's use of cameras can empower them as agents who control the process of taking pictures interesting to them (Barker and Weller 2003; Einarsdottir, 2005; Young and Barrett, 2001). Children may enjoy learning how and/or taking pictures, and be eager to talk about their photos (Einarsdottir, 2005; Punch, 2002; Yang and Barrett, 2001). The children's perspectives are dominant in the interview, and they talk about their photos, explaining, interpreting and discussing meanings they attach to these photos (Einarsdottir, 2005: 527). Children can communicate their feelings, impressions and ideas verbally and visually (ibid, 527). In addition, the method can help establish inter-subjectivity between children and the researcher (Barker and Weller, 2003: 42).

One disadvantage of photography is that cameras are costly, and hence disposable single-use cheap cameras have been used in research with children (Anggard, 2015: 4). Another disadvantage is that using researcher-taken photographs in the discussion is framed by the researcher (i.e., the researcher choses the topic to be discussed) (Holm, 2014: 5). Hence, these photographs may risk representing the subjective interpretations of the researcher of the world (Holm, 2014: 5). However, this issue may be resolved by children taking their photos and hence discussing the events that are meaningful to them in the interview (Holm, 2014: 6). A further disadvantage of this method is that the participant children may choose to photograph things irrelevant to the research (Holm, 2014: 6). This requires the researcher to explain the purpose of their research to the participants (Holm, 2014: 8). Photography also invites careful ethical considerations as 'the risks are higher when participants can be identified' (Holm, 2014: 9). Ethical considerations in this study will be discussed later on.

Photography has been used in a variety of ways in research with children: child-led tours, children taking pictures on their own, or accompanied by a teacher or a parent (Anggard, 2015; Clark and Moss, 2001; 2011; Einarsdottir, 2005). In my study, the children were given child cameras to take pictures. They had the freedom to take pictures of whatever interesting to them and whenever they felt they liked to take pictures. Then they were consulted on whether and when they liked to talk about their pictures. Hence, this flexibility, while diverting the direction of the research into topics of no interest to this study, provided them with opportunities for meaningful participation (Kellett et al., 2004: 332). In addition, the children were invited to share their own thoughts about pictures taken by the researcher of them while interacting in the context of ICT-related activities. The choice of time, length, being with a friend and place of informal discussions were discussed with the children.

3.5.6. Summary

I followed the ethnographic methodology in this study. This methodology requires the researcher to learn about the culture of a group by means of participant observation, which is in turn requires the researcher to adopt some role in the culture explored so that the learning process starts. Moreover, depending on participant observation, I made use of some participatory techniques in order to maximise my learning from the children about their inner worlds, whose advantages, disadvantages and uses in the study were explored. It was also noted that participant observation is problematic in doing research involving children. I managed to address this problem by negotiating my identity and roles in the field with the children and practitioners. The issues of my participation in young children's culture and my role in the fieldwork will be explored in further details (see section 3.10 page 152).

3.6. Strengths and Weaknesses of Ethnography

3.6.1. Strengths of Ethnography

Ethnography is an ideal methodology for doing research with children (James and Prout, 2015: 4), since this ethnographic mode of enquiry helps the researcher to catch the stories that children construct in their play: catching these stories in action in order to learn about their perceptions and the meanings of their experiences (Rich, 2002). By means of conversing with children, the researcher is able to hear their descriptions of their own stories, insights which observation in its own would not be able to clarify (Harden et al., 2000: 4). In addition, the very flexible nature of ethnography enables the researcher not only to learn from the children but also to benefit from their expertise in developing the research questions, modes, roles and conduct. This can be done by the virtue of two characteristics: using the 'native language' (i.e., children's words) of participants to describe events (Spradley, 1980: 18), and the self-corrective nature of ethnography (Eder and Corsaro, 1999: 524-525). That is, ethnography allows the researcher to self-correct their own research conduct and methods of data collection through fieldwork experiences and knowledge about the children's ways of communication. Hence, research practices can be developed in such a way that they are more sensitive and meaningful to young children.

Another advantage of ethnography is that by spending time with the children, the researcher comes to know and develop rapport with them. Developing trusting relationships is the outset for collecting trustworthy data in that the researcher is familiar to the children, and children may feel comfortable sharing their private knowledge with that researcher (Parkinson, 2001: 147; Morrow and Richards, 1996). In addition, participant observation helps the researcher overcome the problem of reactivity of members of a group to their presence among them by spending time with them (Grigsby, 2010: 428).

3.6.2. Weaknesses of Ethnography

In immersing themselves in the researched group in an attempt to understand its members' perspectives, the researcher is in danger of "going native" (Adler et al., 1986: 36, inverted commas in original). Hence, one of the major critiques of doing ethnography in early childhood setting is that adult researchers cannot be complete participants (i.e., become native) in the children's culture because of power, physical, and age differences (Corsaro, 1981; Graue and Walsh, 1998; Fine and Sandstorm 1988; Hill, 1997; James et al., 1998; Mayall, 2008; Punch 2002). Some child researchers (e.g., Mandell; 1988; Warming, 2005) adopted the least-adult role as a full member of children's world to tackle this issue of power and other differences. This role has been, Mandell (1988: 464) suggests, a potential strategy for overcoming adult-child differences at theoretical and methodological levels, with physical size differences being minimized by establishing children's perspectives as the basis for interacting and communicating with them. James et al. (1998: 183) question such a role, and argue in favour of a friend role. However, because of unequal adult-child relationships the children might not readily accept the friend role (ibid, 189). In this study, I neither tried to become a 'child' in the settings or felt should be, nor tried to 'other' children (i.e., children have separate world from that of adults) in the research endeavour (James et al., 1998: 181).

Another criticism is that the researcher might become completely immersed in the culture being studied, to the extent that they may become busy participating in the ongoing activities, risking preventing them from reflecting on observed events from an external perspective (Grigsby, 2010: 429). This problem can be solved by keeping professional distance while conducting fieldwork. As Lofland et al. (2006: 17) noted, in doing participant observation, the researcher 'establishes and sustains a many-sided and situationally appropriate relationship with a human association in its natural setting for the purpose of developing a social scientific understanding

of that association'. The researcher is not to be emotionally involved or personally committed but to keep some middle ground or balance between participation and observation (Adler et al., 1986: 364).

There is also the issue of reactivity to the presence of the researcher and, hence, influencing the phenomenon they study (Adler et al., 1986: 365). However, this problem can be solved when the participants become familiar to the presence of the researcher and know them. A further criticism is that participant observers have been accused of being selective (McNamara, 1980). Nonetheless, the researcher has to be selective if they are not to be overwhelmed by the variety of events taking place in the field. In addition, findings generated by ethnographic methods have been criticised for not being generalizable. As it will be discussed below, the ethnographer is responsible for providing a rich account of the research process and its conduct along with a detailed account of the context, so that other researchers and interested parties can decide for themselves whether these findings are applicable to their settings (Guba and Lincoln, 1989: 119).

In one sense, the generalizability of the findings is of no concern to the ethnographer, since the 'primary objective [is] to collect data that conveys the subjective reality of the lived experience of those who inhabit 'educational' locations and for various purposes' (Pole and Morrison, 2003: 17). Hence, this problem is not whether findings are generalizable but that they are reliable so that other researchers and readers can decide for themselves on which aspects are generalizable to their settings (Krefting, 1990: 215-217).

3.7. The Sample

3.7.1. Case Settings

In ethnographic research, there are two possible methods for setting sampling, opportunistic and reasoned (Gobo, 2008: 101). Opportunistic or convenience sampling simply includes choosing 'the first setting that becomes available' (Gobo, 2008: 101). The other type of sampling, reasoned, entails 'close scrutiny of existing settings and the choice of those best suited to the conceptualisation produced during the research design' (ibid, 101). Qualitative sampling 'usually requires a flexible, pragmatic approach' (Marshall, 1996: 523). My study was dictated by convenience sampling strategy, but there were elements of the purposive setting sampling. For instance, the first setting, W setting, was chosen because I knew the staff, and it was located nearby, which was opportunistic sampling. However, it was also selected because it was well equipped with a range of ICT resources. Hence, it could provide me with opportunities to observe children's social interactions with technology. Towards the end of my fieldwork in W setting, I went on to choose another two more settings to further explore the phenomenon and develop the accounts that were captured in the first setting. Purposively approached settings refused participation in the study, and this practical difficulty made me approach other settings on the basis of access: setting S and Setting B. Setting S was excellent in terms of ICT provision to young children, and setting B was close to the norm.

3.7.2. Unit Sampling

Having selected the settings, I used 'incident sampling' (Gobo, 2008: 101-103, commas in original). These are instances that allow for capturing the complexity of social processes, since they are not only 'more easily detectable and observable, but also because these units allow more direct and deeper analysis of the characteristics observed.' (Gobo, 2008: 99) Hence, the

sampling unit (i.e., unit of observation) in this study was events or incidents that involved children interacting in ICT-related activities.

3.7.3. The Characteristics of the Case Settings

The study was based within three privately-run day nurseries, and each setting provided places for roughly 40 to 70 children in the age range three months to four years. Each nursery was staffed by 10 to 16 practitioners and a head-teacher. My research concerned children who were three and four year-olds. Each setting had a classroom that included 20 to 40 children in this age range. 'Practitioners' is a general word that covers two roles: one is a teaching role, and one is a teaching assistant role. Most of the practitioners worked on a full-time basis. The practitioners included people with distinctive teaching roles and assistant roles as well as student teachers. The practitioners in the settings were mostly white British and female. After visiting the settings and handing out consent forms (see appendix 2), I received written agreements for participation within a couple of weeks. The majority of children's parents consented for their children to participate, and 65 children (41 boys and 24 girls) participated in the study (19, 27, and 19 from S, W and B settings respectively). They were between three and four years-old (see appendix 3). Only a few parents did not consent for their children to participate, and these children were excluded from the research activities. All of the three settings were Ofsted registered, and followed the early childhood curriculum, EYFS.

During a normal day, there were two main activities, circle time, and after dinner period between 1.00 pm to 1.30 pm, that were adult-led. The rest of the day activities included a variety of adult-structured, child-led, and free child-initiated activities, in which adult involvement ranged from no/minimum interference, to joining their play, to supporting and supervising their play, and to ending the activity when it was tidy up time.

Each setting had a large play classroom for three to four-year olds, and an open outdoor playground. Each classroom had different play areas that offered children a variety of play opportunities according to their preferences and interests (e.g., ICT, story, math and literacy). In each setting, the ICT or computer area included a desktop computer with child-sized bench and items for pretend play such as pretend cameras, phones, mouse and keyboards, calculators, and broken radios for children to experiment with. In W nursery, there was a Bee-Bot. W setting also had IWB. All nurseries gave children free access to a CD player, pretend cameras, pretend keyboards and mouse, musical keyboards, and a till, which they could access during their free time. In practice, nearly all the activities observed were child-led, albeit using tools which practitioners had laid out for them. However, there were differences among the settings in relation to access to the computer or the IWB. The children in S and B settings had free access to desktop/laptop computers, but in W setting, access to these was strictly controlled by the practitioners. The practitioners' policy in relation to ICT, in W setting, was that children 'here [in W nursery] need to do things that they cannot do at home like playing with friends' (Jane a practitioner at W Setting). While children in W and S settings had access to the internet so that they could access child-related websites, children in B setting had no access to the Internet (see tables 3 and 4 below). Instead, they had a variety of games installed on the computer. In addition, only S setting had an iPad that children could use in their free play time.

Table 4: ICT resources available to children in each setting

ICT resources that children had access to	W setting	B setting	S setting
Desktop/Laptop Computer	X	X	X
IWB	X		X
CD player	X	X	X
Bee-Bot	X		
ICT replica versions	X	X	X
Torches	X	x	x
Camera	X	X	X
Pretend mobile phones	X	X	X
Internet	X		X

Table 5: the nature of children's access to these resources

ICT resources available	Type of access					
	Free			Controlled		
	W Setting	B Setting	S Setting	W setting	B Setting	S Setting
Desktop/Laptop Computer		X	X	X		
IWB			X	X		
CD player	X		X		X	
Bee-Bot				X		
ICT replica versions	X	X	X			
Torches	x	x	x			
Cameras			X	X	X	
Pretend Phones	X	X	X			
Internet				X	X	

The children in B and S settings were ethnically white British, though a few were black British or from other ethnic backgrounds. All three nurseries catered for mixed range of children albeit these catchments were often described as middle-class by practitioners. For example, parents were often employed in professional occupations. In contrast, the children in W setting were more ethnically diverse, though the majority had White British ethnicity. In W setting, most of the children had English as their first language, though a minority had English as a second language (see appendix 3). As discussed earlier, the use of drawing and photography helped me to overcome the language issues with the children with English as a second language.

3.8. The Outcome of the Ethnographic Research

As discussed earlier, the main purpose of ethnographic researcher immersing themselves in the daily lives of the 'native' is to learn the meanings of their world. The final published report in the ethnographic project, the 'textual enterprise' (Hammersley and Atkinson, 2007: 191) is a site where multiple interpretations or constructions occur (Creswell, 2007: 39; Whitehead, 2004: 17). In my study this was represented as follows: first, as an ethnographer, I constructed what I observed, experienced, and recorded in the field (Gobo, 2008: 70-71). Second, in writing

and recording my data, I reported the participants' constructions and interpretations of their actions and events (Creswell, 2007: 39). Third, the audience (e.g., interested readers and other researchers) may construct their own interpretations of the final report. The issue of judging the quality of the data in my study will be tackled in a separate section later on.

3.9. Summary of Ethnography

Ethnography relies on participant observation and other methods of data collection such as interviews, field notes, and/or other methods that prove useful in the field in terms of exploring the participants' perceptions. The philosophical assumptions behind ethnography include ontological, epistemological, and methodological assumptions. These have implications for the research processes (e.g., the researcher's role, data collection methods, developing theory out of the data, and the published report). It was noted that the essence of participant observation is experiencing the other's ways of being in the world from their own perspectives. However, since my study was with children, ethnographic research with children was reviewed, along new methods for research with children called child-centred methods. Two of these creative methods were discussed (i.e., drawing and photography), which were used in this study. The criteria for enhancing the rigour of qualitative data will be discussed later, along with ethical considerations.

3.10. Rationale for the Use of Ethnography in My Study

My study planned to understand nursery-aged children's experiences and awareness of a particular aspect of their learning, namely that of interacting with ICT. Adopting an ethnographic approach was fruitful for many reasons:

- It allowed me to enter children's culture by means of participant observation.

- It positioned children as social actors who have views and concerns that are worthy of exploration on their own right.
- I was able to explore the children's activities in the natural setting of the nursery (i.e., in an everyday context) uncovering the influence of the contextual elements on these experiences.
- I could collect data from a variety of different resources that were not pre-structured, but arose from the natural occurring of the events in their natural context.
- I was able to explore children's subjective meanings of their experiences.

3.11. Rigour of the Qualitative Research

In this section, the criteria for establishing the rigour of the qualitative research will be presented and discussed. Then, the trustworthiness of my study will be addressed.

3.11.1. Trustworthiness Criteria

Trustworthiness is an appropriate alternative term for describing how the rigour of the qualitative research process may be ensured. Lincoln and Guba (1985: 300) introduced a model to achieve rigour in the process of qualitative research. They introduced four terms: 'credibility', 'transferability', 'dependability', and 'confirmability' (ibid, 300, inverted commas in original). These are, as they contend, 'the naturalist's equivalents for the conventional terms 'internal validity', 'external validity', 'reliability', and 'objectivity'.' (Lincoln and Guba, 1985: 300, inverted commas in original)

In this study, I drew heavily on the following modes of trustworthiness including prolonged engagement, persistent observations, triangulation, reflexivity, and member check. To start with, the qualitative researcher has the mission of rendering the private subjective worlds of

the participants accessible (Krefting, 1990: 214). Another related point is that qualitative researchers follow a variety of approaches in achieving this aim (e.g., ethnography, phenomenology). Hence, as Krefting (1990: 215) warns, the criteria for evaluating the quality of qualitative research will vary in accordance with the different qualitative research approaches (e.g., phenomenology, ethnography, grounded theory, etc.). In what follows, the general criteria for supporting the trustworthiness of the qualitative research will be addressed alongside some techniques for enhancing each criterion.

3.9.1.1. Credibility

Credibility means that the data set, and its subsequent analyses and interpretations are not invented by the researcher, but reflect the participants' concerns and multiple constructions of their experiences (Guba and Lincoln, 1989; Krefting, 1990; Lincoln and Guba, 1985). Some techniques enhance the credibility of the qualitative data. These include prolonged engagement, persistent observation, and triangulation (Lincoln and Guba, 1985: 301). The first (i.e., prolonged engagement) is achieved through participant observation in the setting for prolonged periods of time that allow the researcher to grasp the meanings that the participants attribute to their culture. The researcher as an active learner spends time in the setting in order to appreciate the meaning of a phenomenon with regards to its wider cultural context, providing the scope for the investigation of the phenomenon (Lincoln and Guba, 1985; Onwuegbuzie and Leech, 2007b). This prolonged involvement is also invaluable in terms of uncovering misconceptions or distortion carried by the researcher and/or the respondents. However, the prolonged engagement in the field hinges on the researched being willing to share knowledge. Hence, the researcher still needs to establish rapport with the participants (Krefting, 1990: 218). Over time the researcher can overcome the reactive effect of their presence by becoming accepted by the group they are studying (Lincoln and Guba, 1985: 302). The persistent observation of the

phenomenon allows for iterative data collection episodes about the phenomenon (Whitehead, 2004: 18). Continually observing the phenomenon of interest over longer periods, in different contexts and occurrences, allows the researcher to capture its characteristics and attributes, providing depth in researching the phenomenon (Onwuegbuzie and Leech, 2007b: 239).

Triangulation is another way of enhancing the credibility of the data. It is 'a process carried out with respect to data - a datum or item of information derived from one source (or by one method or by one investigator) should be checked against other sources (or by other methods or investigators)' (Lincoln and Guba, 1985: 316). Types of triangulation include triangulation of data methods (e.g., interviews, observations), triangulation of data sources (e.g., different settings and different participants), theoretical triangulation and triangulation of investigators (Krefting, 1990: 218). Triangulation of methods helps the researcher to benefit from the strengths of each method (e.g., surveys and interviews, or observation and interviews) (Shenton, 2004: 65). There is also a kind of triangulation that uses different informants (i.e., different participants), known as triangulation through 'data resources' (Shenton, 2004: 66).

Another strategy for enhancing the credibility of the data and its interpretations is member checking. This process of member checking concerns examining the '*constructions*' (Lincoln and Guba, 1985: 316, emphasis added). It is a technique that invites the researcher to present the findings and interpretations of the data to the participants who construct them in order to examine whether these interpretations and findings reflect a true translation of their multiple constructions (Krefting, 1990; Lincoln and Guba, 1985). This technique can be conducted formally or informally on on-going basis (Lincoln and Guba, 1985: 314)

3.9.1.2. Transferability

Transferability refers to offering a detailed contextual account of the phenomenon so that others, including readers, can decide on whether the context of that phenomenon is similar to other situations and hence whether the findings can be used in their settings (Krefting, 1990; Lincoln and Guba, 1985; Shenton, 2004). The first technique of enhancing transferability of the study is that the researcher should provide as much detailed description of the participants and the research context as possible, so that others including readers and researchers are able to make decisions about the transferability of the findings to their settings (Guba and Lincoln, 1989; Krefting, 1990). Hence, the emphasis moves from generalization to working hypotheses that can be transferred to other contexts (i.e., a matter of fit to the new context) (Guba and Lincoln, 1989: 119).

3.9.1.3. Dependability

Dependability requires the researcher to provide a detailed account of the phenomenon so that other researchers would be able to explore it again (Krefting, 1990; Lincoln and Guba, 1985; Shenton, 2004). Triangulation of different data methods is also helpful in terms of enhancing the dependability of the findings. This can be really useful when one method compensates for the weaknesses of another (Krefting, 1990: 221). Another technique is persistent observation of the phenomenon which enables arriving at patterns in the field (Krefting, 1990: 221).

3.9.1.4 Confirmability

Confirmability means demonstrating that the data set and its related findings are derived from the data not from the researcher's subjective preconceptions and thoughts (Krefting, 1990; Lincoln and Guba, 1985; Shenton, 2004). Again, triangulation of a variety of data collection methods helps to enhance the confirmability of the study (Krefting, 1990: 221). It can also be

supported by providing a reflexive account of the research process (Lincoln and Guba, 1985: 327). This reflexive account is about 'the assessment of the influence of the investigator's own background, perceptions and interests on the qualitative research process' (Krefting, 1990: 218), which be discussed later on.

3.11.2 The Trustworthiness of This Study

This study was grounded in the ethnographic approach. Hence, the data set and the interpretations based on it have to reflect the informants' constructions of their own experiences. The following qualitative strategies (e.g., prolonged engagement, persistent observations, triangulation, reflexivity, member checking and peer debriefing) were used to ensure the trustworthiness of this study across the four criteria of trustworthiness.

3.11.2.1 Prolonged Engagement

In my study, I did not collect any data till a rapport was established with the participant children. In each setting, I spent roughly four months. In W setting, I started fieldwork from April 2013 till the end of August 2013 on a full-day basis. In the second and third settings, I started fieldwork from November 2013 till April 2014. I visited B and S settings twice a week on a full-day basis. In each setting, a practitioner introduced me to the children in a circle time session. As a participant observer, I attended the circle time sessions, and then joined in children's free activities in the classroom and the playground, based on their requests and invitations. After my initial introduction, the children came to know me gradually, first by their initially shy attempts to interact, such as smiling at me, showing me their toys, and through to their emotionally charged invitations to join them in their play whether inside or outside. Under these kinds of circumstances, the trust relationships with the children started to develop. As Lincoln and Guba (1985: 303) acknowledge, building rapport with the participants is 'a developmental process to be engaged in daily' to assure the participants' interests and maintain

this relationship. Prolonged engagement helped me to provide thick description of the context of the children's ICT-based activities (i.e., their friendship relations, the nature of their interactions, ways of managing conflicts, etc.).

3.9.2.2. Persistent Observation

The contextual influences that are discovered by prolonged engagement are pursued through persistent observation (i.e., intensive observations of the phenomenon in its different natural environments in order to gain a detailed account that articulates its dimensions, patterns, attributes, etc.) (Krefting, 1990; Lincoln and Guba, 1985). In this study, I started to observe children's activities for the most part during their free time. Continuous observations of these activities led me into discovering that children tended to perceive these activities as a form of play. Subsequently, I started to focus especially on how the children enacted this play and the influence of the context on these activities. I supported these observations with conversations with the children, using techniques discussed earlier (drawing and taking pictures), and I learnt about how they constructed their play. The extended periods of observation, alongside persistent observations of so perceived play with technologies, allowed me to gain knowledge about patterns, and hence, to see that patterns appeared repeatedly.

3.9.2.3. Triangulation

In this study, I made use of two types of triangulation: methods triangulation, and informant triangulation. Along with participant observation, I adapted two techniques that were used in informal conversations with the children (i.e., drawing and photography), which helped me to collect multi-modal data, in accordance with the children's preferences. Hence, using different data collection methods helped me to achieve a better understanding of the children's constructions of their own experiences. While observation was useful in getting information

about events, actions and patterns, conversing with the children was crucial in that it helped me in understanding the reasons behind their actions. For instance, often participant children withdrew from ICT-related activities, and/or characterised these activities as 'boring'. I was unable to comprehend the reasons behind their actions from just observations. Therefore, I approached the children for more clarifications on their actions. Hence, triangulation of the methods helped me compensate for the weaknesses of one method with the strengths of other (i.e., observation and conversations) (Shenton, 2004: 65).

3.9.2.4. Reflexivity

This strategy requires the researcher to constantly question themselves as a researcher and their own research methods (Lincoln and Guba, 1985: 327). This complex process of reflexivity seeks:

> to incorporate multiple layers and levels of reflection within the research. These would include considering the complex relationships between the production of knowledge (epistemology), the processes of knowledge production (methodology), and the involvement and impact of the knowledge producer or researcher (ontology). (Haynes, 2012: 73-34)

Reflexivity is the researcher's recognition of their own personal experiences 'through the process of turning one's analytical lens on oneself' (Mason, 1996: 151). In terms of my study, I started with a shallow understanding of the subject under study (i.e., children's perceptions of their ICT-related experiences), and I viewed the participant children as the source of knowledge about their own experiences. Based on the ethnographic methodological conception of the researcher as a learner and instrument of data collection as discussed earlier, I aimed to learn from the children, and started to observe their activities. Once I became familiar with the children, I started to inquire from them about these activities. Their words, at first, seemed to be puzzling, and the children did not like being asked directly about their experiences. I decided

to change my approach. Indeed, I realised that establishing rapport with the children and becoming known to them was not enough to know their meanings of their world. It had to be combined with appropriate methods and ways for communicating with them.

While disappointing, these initial instances were thought-provoking. I decided to observe children's activities, and develop my learning from there. The learning process was provoked by noting a child, Yang, requesting to go to the ICT area: 'Can I play on the computer?', asking for permission from his key worker. In this decisive instance, I started to become aware of the children's intentions and meanings they ascribed to these activities through their play. From there (i.e., observing their own language), my learning journey about the children's perceptions started to grow. Furthermore, since my first attempts to inquire from the children about their meanings were not successful (e.g., asking abstract questions, assuming that children could talk just like adults) oblivious to their culture and preferred ways of communication, I started to develop research methods based on observations of their activities, ways of interactions, and preferences. This methodological decision let my inquiry flow from the children's activities, ways of expressing themselves, and preferences, and I was able to develop an inquiry grounded in their own experiences. I made use of two techniques in informal conversations with the children: drawings and photography, as explained earlier. Discussions in these informal settings revolved around their own experiences. The children were informed that they could chose the time, place, to be alone or with a friend in these discussions, and that they could leave at any time they wanted. Thus, being open to young children's preferences and inquiring with them (Christensen, 2004) was conducive to developing research context in which the children felt comfortable sharing with me their own thoughts about their ICT-rated activities.

In the light of this reflective engagement with the research process, the methods were revised and developed (Haynes, 2012: 73-34). Following the children's lead proved useful in learning

how they perceived their ICT-related activities (i.e., play), and how they enacted their perceptions of these activities (e.g., their play meanings and motives).

3.9.2.5. Member checking

Member checking 'is a process carried out with respect to *constructions*' (Lincoln and Guba, 1985: 315-316, emphasis added), that is, checking with the 'human resources' who provided the data set(s) on whether the researcher's interpretations reflect their own constructions (Lincoln and Guba, 1985: 328). Throughout the research process, I continuously checked with the children whether my interpretations accorded with their meanings. After collecting video-recoded observations of the children's interactions in the context of ICT-based activities, I sought further clarifications and explanations from the children themselves about unclear and/or ambiguous episodes. For instance, conflicts were common in children's activities. Initially, I thought they did not like sharing, preferring to play on their own. However, by talking to the children, I was able to understand that these conflicts were attempts to play on a fair basis. Hence, this process of checking with the children ensured that the children who were the source of the data 'honour[ed] the reconstructions' of the researcher (i.e., the researcher's interpretations of their own meanings) (Lincoln and Guba, 1985: 329). The process of checking with children was informal and conducted whenever the context allowed time for discussions with them.

3.9.2.6 Peer Debriefing

Peer debriefing includes presenting the data set to a peer in 'an analytic session' for exploring aspects of the inquiry 'that might otherwise remain only implicit in the inquirer's mind' (Lincoln and Guba, 1985: 308). In this study, I carried intensive discussions with my co-supervisors about my data collection methods, data analysis and findings (Spall, 1998: 280).

In particular, codes and the transcripts of codes were discussed with my supervisors, and we made comparisons of coded texts. In most cases, there was an agreement on the developed codes, but in some cases there was disagreement. The later instances led to modifications that were conducive to a more coherent and comprehensive set of codes (see chapter 4).

3.12. Ethical Considerations: a Vital Running Theme

It is acknowledged that ethically sound research practice is needed in talking to children about their own experiences (Clark, 2004: 157). The position of children as social actors with rights and valid understandings of their world (e.g., Christensen, 2004; Christensen and Prout, 2002) has placed ethical duties on researchers towards their child participants. The essence of ethics in the conduct of research concerns respecting young children just as any other group of participants. However, as acknowledged by Alderson (2005: 29), ethics 'does not provide simple answers'. It has been noted by Christensen and Prout (2002: 489-491) that 'the limited scope of many ethical discussions also means that researchers often have to rely largely on their own personal judgements in their everyday ethical practice', which may be conducive to 'an inadequate treatment of ethical issues.' Therefore, Christensen and Prout (2002: 491) advise us to be open to unexpected or new situations of the field, and flexibly apply ethical standards (Christensen and Prout, 2002; Thomas and O'Kane, 1998). However, even following situated practices in research does not guarantee solving all potential ethical questions:

> Such a practical, situation-oriented ethics has also to be rooted in a value-oriented strategy that anchors particular tactics in a broader set of aims. The principle of ethical symmetry is one such strategic orientation: the rights, feelings, and interests of children should be given as much consideration as those of adults. (Christensen and Prout, 2002: 493)

Ethical issues in research with children are broadly classified into three groups: 'informed consent, confidentiality and protection' (Davis, 1998: 328). Morrow and Richards (1996: 96)

go further to consider whether assumptions about ethical matters in research with children may be determined by the degree to which children differ from or resemble adults. They conclude that the same ethical considerations applicable to research with adults should be applied to research with children, but we should add to these three marked considerations: vulnerability, perceived child incompetency, and the issue of powerlessness of young children (ibid, 96-103).

Before considering these ethical matters (e.g., obtaining informed consent, perceiving children as vulnerable, power imbalance), there are two issues that should be noted from the start. The first is that the position that the researcher adopts concerning children's status in the research (i.e., participants, or mere objects) has implications for methods, data interpretation, and the relationship between the adult researcher and the young participants (Christensen and Prout, 2002; Morrow and Richards, 1996; Thomas and O'Kane, 1998). In my study, the children were viewed as social agents (Christensen and Prout, 2002: 481), this was not to ignore the fact that 'everyone, children and adults, has needs and strengths, failings and skills.' (Alderson, 2014: 93) Rather, it was an acknowledgment of respect to these young children and their abilities when researching their own experiences (Alderson, 2014; Morrow and Richards, 1996). Furthermore, from the ethical symmetry stance, children are 'fellow human beings' whose abilities, ways of communication, and concerns are sensitively taken into consideration and treated with respect (Christensen and Prout, 2002: 484). The second issue is that ethical issues are on-going throughout the research process (Christensen and Prout, 2002; Morrow and Richards, 1996; Powell and Smith, 2009). Both of these points will be elaborated on in what follows.

Children's access to participation in research is 'influenced by perceptions of their competency and vulnerability [e.g., in need of protection, age], and power issues [children's ability to decline to participate]' (Powell and Smith, 2009: 137). Hence, the existing gatekeeping systems

problematise obtaining access to young children, and thus, gaining their informed consent. As Harcourt and Conroy (2005: 570) note, 'rarely have the children been given an opportunity to accept or reject their participation.' Instead, they are normally approached through informed assent or informed rejection (Fine and Sandstorm, 1988; Harcourt and Conroy, 2005). Therefore, researchers need to go through a gate-keeping chain that may or may not grant them access (Harden et al., 2000: 8). Furthermore, children are powerless in the process of recruiting research participants, since the very decision of whether to take part is first and for most in the hands of adult gatekeepers (Powell and Smith, 2009: 125). For this study, I obtained the approval of the ethics committee in the university, (see appendix 1). In addition, a DBS disclosure was made available to all parties in the study, including head-teachers, parents and practitioners. All children's parents in the three nursery settings received consent forms (see appendix 2), which were distributed by the nurseries. These consent forms explained clearly and simply the nature of the research, its methods and their children's participation in the research. Only a few parents did not consent for their children to participate in the study. These parents' decisions were respected, and their children were excluded from the research.

Nonetheless, sending ethical forms to participants and negotiating access to young children was just the beginning of a complex ethical journey (Bone, 2005; Christensen and Prout, 2002). As mentioned earlier, the researcher has to be alert to ethical issues throughout the research project (Alderson, 2014; Christensen and Prout, 200; Morrow and Richards, 1996; Powell and Smith, 2009). Part of the on-going ethical responsibility of the researcher is to tackle the issue of power that has implications both for the relationships between the researcher and the researched, and for data interpretation. The power imbalance is characteristic of the relations between the adult researcher and the child participants (Corsaro, 1981: 118; Morrow and Richards, 1996: 98; Thomas and O'Kane, 1998: 337). However, this power imbalance can be minimised by following many well reported research techniques. Establishing rapport involves

sensitively approaching and negotiating with children and adult gatekeepers. Another related research technique is to avoid seeing power as fixed in social positions (i.e., adults, children) per se, but as rooted in the practice of the research enterprise (Christensen, 2004: 166-167). Initially, after being introduced to the children in the settings, I felt that I was alone in the middle of chaotic noisy environment. Everything was new, and I was unfamiliar to the children. My first attempts to get involved with children were rejected. Expressions such as 'I'm busy', 'we're goanna have a party' were common, and perplexing. However, as mentioned earlier, I decided to observe children's interactions, use of language, expressions of feelings, and the natural flow of their activities. I supported these observations of children's activities and interactions with my intention to listen and learn from them, showing intrinsic interest in their perspectives and ideas (Christensen, 2004; Fine and Sandstorm, 1988). This decision was based on my attempt to know what is called children's '*cultures of communication*' (Christensen, 2004: 165 emphasis added). These practices (e.g., being interested in children's ideas, listening to them, and establishing rapport with the children) helped me reduce the power imbalance in my interactions with them. Spending extended periods of time in the field with the participants helped me in this regard (Christensen, 2004; Eder and Corsaro, 1999).

Initially some children thought I was a 'teacher', and associated my character with the same responsibilities and duties as the practitioners' (e.g., duties associated with routine activities such as snack time). In order to establish my identity as a non-authoritative figure in the field, I relied on instances in which the children themselves either came to show me their 'special' toys, and/or to ask for help. I actively took these opportunities to establish rapport and trust with them. This strategy of being reactive to children's actions and following their ideas was important in building rapport with them (Corsaro, 1985; Punch, 2001). Gradually, the children got to know me and started to invite me to join in their activities in and outside the classroom. They invited me not only to join in their play activities but also required me to follow the rules

of the setting (e.g., tidying up, sitting on the carpet, clean my hands before having 'dinner'). However, in joining their activities, the practitioners stressed that I should be adult with authority, meaning that I took an active role in monitoring the children's activities. This request, I felt, put me in a real predicament that may undermine my friendly relations with the children. Thus, I explained that I would notify the practitioners about activities that required their intervention without taking the authority role. This position came to my mind after observing children's conflict resolution techniques. Children normally resorted to adults to solve arising conflicts about friendship and object possessions. Here, I managed to establish middle ground between continuing friendly relations with the children and learning from them, and avoiding undermining the adult authority of the practitioners by violating what they perceived as 'adult authority' role. By following this least-adult role (Mandell, 1988) but avoiding pretending to be a child just as discussed earlier, I negotiated my field role with practitioners who were curious to draw a line between adult world of authority and responsibility, and child world of fun. My role, then, was in line with that of Christensen's (2004: 174) 'other' adult or 'a different sort of adult' in her research with children. Avoiding both pretending to be a child and being associated with adult authority, Christensen succeeded in reserving her non-authoritative adult role (Christensen, 2004: 174):

> an on-going balancing act between being recognised as an 'adult'; and at the same time avoiding the preconceived ideas, practices and connotations associated with 'adulthood' or specific adult roles such as a teacher, member of staff or a parent.

In the fieldwork, I did not try to hide my differences (i.e., being an adult), but instead I negotiated them with the children and adult gatekeepers. Children constructed my role as a friend with whom they liked to play. Sometimes, I found myself caught up between two children who invited me at the same time to join in their activities in different areas. Accepting the invitation of one child meant upsetting the other one. In other situations, some children

were cruel to other children, and children who were upset demanded that I intervene in the situation. In one instance, Alice was pushed by Colin and she demanded that 'Hani, tell Colin off? He pushed me? (with a frown at her face)'. I suggested that we talk to the teacher, because the teacher could tell him off (S setting 12/11/2013). I also got caught up between joining in children's activities and just having fun with them, on one hand, and supervising their 'silly' actions, as demanded by the practitioners. For instance, when children dealt with toys in a way that might damage them, I was expected to 'discourage' them from doing so. I managed to negotiate my role as a *caring adult* who both was available when invited by the children to join in their activities, and cared about their wellbeing along alerting 'grown-ups' to potential physical harm. However, on occasions, I had to stop the children from hurting each other, when a practitioner was not present.

Being reflexive in the field, while establishing rapport with the children and their adult gatekeepers and carrying out the research process, allowed me to develop meaningful research techniques that were grounded in the children's own experiences. At times I got it wrong, and this happened when I was inquiring about topics not grounded in children's experiences, for example, using a more formal interview format. This did not work, as the children became quickly bored. These 'errors' were eliminated as my fieldwork experience grew. Ethnography, by its very nature, allows the researcher to self-correct their own research conduct and methods of data collection through fieldwork experiences and knowledge about the children's ways of communication (Eder and Corsaro, 1999: 524-525). Hence, in keeping with young children's experiences, preferred ways of communication, and the ethnographic methodology, some participatory research techniques such as drawing and photography were used in informal discussions. These task-based activities proved helpful in that the children enjoyed them. According to early childhood researchers, using participatory and sensitising modes of inquiry with children such as drawing and taking pictures help reduce the issue of power imbalance

(Davis, 1998; Morrow and Richards, 1996; Thomas and O'Kane, 1998). Discussions with the participant children about their drawings and pictures taken by them and/or of them did not confront, expose, or put them on the spot in that they were familiar with drawing and taking pictures or being pictured (Davis, 1998: 328). The use of these techniques was based on consulting or dialogue with the children about their own preferences (Christensen, 2004; Hill et al., 1996), and hence, created space for them to express their voices and contribute their perceptions (Hill et al., 1996; Mauthner, 1997). Some children preferred to draw and enjoyed drawings. Other children felt excited about the idea of taking pictures and then enjoyed viewing their pictures and sharing with me their ideas about them. Therefore, the data were co-generated by the children and me, rather than by the researcher-driven questions and concerns (Fine and Sandstorm, 1988; Morrow and Richards, 1996). Subsequently, the children had a choice over the type of participation in the research and the form of communication of their ideas (i.e., taking pictures or drawing), and also influenced both the direction of the discussions, and the interpretations of these experiences (Thomas and O'Kane, 1998: 341). In addition, these methods helped to engage the children by sustaining their interest while avoiding making them feeling bored (Hill et al., 1996: 133).

Informed consent was also germane to the issue of confidentiality (Fine and Sandstorm, 1988: 30). In this study, the children's parents, practitioners, and head-teachers were assured that the issue of confidentiality was paramount. It was stressed that no information that would identify the children, the practitioners and the nursery would be passed on to a third party. In this thesis, pseudonyms are used for children and nursery. Some parents showed their concerns about their children's photos being made public, but I assured them that these photos were only for use with the children for the purpose of the research, and that these photos would not be used for any other purpose.

In relation to the participant children's privacy, my presence in the setting did not violate their spaces (Alderson, 2014: 94). I was normally invited by the children to join in with their activities. However, in situations where I felt my presence was unwanted I left. In addition, the informal conversations with the children centred on what the children were doing, and were administered flexibly whenever the context permitted. In consultation with the children, the time, duration, and place of the informal discussions were identified. Some children preferred to hold the discussion with me in the presence of their friend(s), and their wishes were honoured. The conduct of these informal discussions was flexible, so that the children's choices, wishes, and interests were respected and followed. In many instances, the children developed the discussion into other activities (e.g., hide and seek game, reading a story, going outside to play, etc.). In all of these discussions, I asked the children for their permission to audio-record the discussions. I also used video-recording camera to record the activities of interest. The use of video-recording technique was first discussed with the practitioners. The researcher consulted them on ways of using the camera without disturbing children's activities, so that the children would not be distracted when carrying out activities on ICT-related equipment.

As discussed earlier, the adult researcher is ethically liable to protect young children from any potentially serious harm. As a researcher, while not having an authoritative role, I only intervened in the absence of adults to prevent a dispute from developing into serious fight. This did not undermine my status as a friendly adult as I explained clearly and simply that 'we should not hit each other'.

The participant children contributed to the process of data interpretation by reflecting their views on their lived experiences (Alderson, 2014: 88). Furthermore, I consulted with the children about observations that were ambiguous to me. They happily clarified their meanings

of these activities. This strategy (i.e., checking with the children) is advocated by Sinclair (2004: 113), which was discussed earlier. This not only enhanced the trustworthiness of the reported data and the interpretations made upon it (Lambert et al, 2013: 602) but also was respectful to them.

Finally, ethical responsibility of the researcher extends to the publication and dissemination of the research findings. According to Alderson (2005: 108), the responsibility of the research at the stage of dissemination includes publishing results that do not reinforce 'negative stereotypes about children and young people'. As mentioned earlier, this study was about learning from the participant children in order to capture their meanings and perceptions of the topic under exploration, ICT-based experiences. This aim, according to Alderson (2005: 108), was ethically respectful to the children. In relation to reporting and disseminating the findings, I hoped that these would convey a trustworthy picture of children's thoughts, concerns and views to both the research community and policy-makers.

3.13. Summary

The case study approach is outlined. Ethnographic methods and the philosophical assumptions behind ethnography are discussed. In particular, the framework offered by Thomas (2011) has been explained (2011) with attention to the elements of subject, purpose, approach and process. In terms of my study, the subject was key and local; the purpose was instrumental and exploratory; the approach was illustrative, interpretative and led to theory building; and the process was multiple or collective case study. In addition, theorising and theory were also discussed and it was shown that the contribution of this thesis was both providing an in-depth reading of children's ICT-based activities and developing an explanation of digital play based on the data set. The approach taken was inductive.Following this, some advantages and disadvantages of this strategy were discussed, and ways of solving its shortcomings were

suggested. In the next chapter, the data analysis procedures are addressed. The methodological contribution of this study is that it provides a case of a mixed method, of innovate data collection and sustained immersion in the field.

It is noted that ethnography relies primarily on participant observation and also on ethnographic interviews, although there is overlap between the two. The degree of participation and observation vary, but in terms of this study, I negotiated my role as a participant observer, joining in children's activities based on their invitations. The ethnographic principle of participation of some kind in the setting of the researched group, along with viewing children as social actors was followed in order to enter and learn their culture. This participation alongside the children entailed engagement with ethical and methodological implications. Ethnography in its nature is a learning process of inquiry, and in this process I reflexively came to revise my methods in accordance with young children's preferences. Two participatory methods were used in the context of informal conversations with the children: drawings and photography. In terms of ethics, the children's abilities, opinions and choices were respected. Their confidentiality and privacy were ensured by using pseudonyms and participating in their activities based on their wishes.

4. Chapter Four: Analytical Framework

4.1. Introduction

This exploration was carried out using a multi-method ethnographic approach, and attempted to capture the inner worlds of these young learners (see the Methodology chapter). This chapter discusses the analysis framework that was used in analysing the data set. The first section explores TA, and addresses ways of ensuring the validity of the analysis process. This section also describes the inductive approach to data analysis that was followed in this study. The second section discusses the stages of TA that were followed in analysing the data set in this study. The final section concludes this chapter by summarising the main points in this chapter.

4.2. The Analytical Framework

4.2.1. Thematic Analysis

According to Saldana (2009: 5) the process of searching for patterns of meaning across the data set is both deliberate and natural: natural because there are 'repetitive patterns of action and consistencies in human affairs', and deliberate since finding patterned meanings across the data set is the prime aim of the data analysis. Braun and Clarke (2012: 57; 2006: 79), and Braun et al., (2015: 95) define TA as a systematic method for identifying, analysing, organizing and reporting patterned meanings (i.e., themes) across a data set, going beyond mere description of the data to interpreting it. Hence, in this case it provided insightful ways of unearthing the meanings that these young children attributed to their experiences.

Rather than aiming to provide the frequency of occurrence of words in a data set (e.g., a text, transcriptions of observations), which is the mainstream tradition within content analysis, TA strives to capture the patterns of` meanings, 'implicit and explicit', that research participants ascribe to their realities (Guset et al., 2012: 10). Furthermore, TA is a 'way of seeing' (i.e.,

identifying an ‘important moment’ in the data set) (Boyatzis, 1998:1). Recognising meanings or patterns across the data set is defined as ‘the ability to perceive patterns of themes in seemingly random or previously unorganised information’ (Boyatzis 1998: 32), requiring the researcher to work carefully and thoroughly across the data set to make sense of the embodied meanings.

In my study, TA was conducted from a second order stance (i.e., interpretations were made by the ethnographer, not by the ‘native’) (Geertz, 1993: 15). Perhaps the most important measure of ensuring the quality of the analysis is its credibility (see methodology), and as discussed, dealing with rigour was an on-going process that pervaded all stages of my study from its design, through data collection and analyses, and to reporting the findings and its publication. At the data analysis stage of my study, there were many ways of demonstrating the credibility of both the analysis process and my interpretations. First, I used quotations from the raw data in the process of theme generation (see Fereday and Muir-Cochrane, 2006).

Another way to ensure the rigour of data analysis was inter-rater reliability. This method entails that two or more researchers independently coding the same research material, and then comparing their coded texts with each other in order to check agreement (Armstrong et al., 1997: 599). In developing my codes, I discussed them intensively with my co-supervisors, and I also checked with practitioners and the children themselves. I discussed examples of coded texts with my co-supervisors, and this clarified meanings of codes and provided a better level of reliability. For example, I initially developed a set of codes including friendship, fairness, agency, and boring, which were subsumed under the theme of play. Upon discussions with my co-supervisors, I learnt that the code, ‘boring’, was difficult to apply and in fact became a way into developing the wider theme of ‘not play’ under which boring later appeared. Once the codes were developed, I gave 7 transcribed observations to another researcher, along with the

codes. He applied the codes to the texts, and then we compared our coded texts. This comparison showed that we broadly agreed on the codes. When there was disagreement, we realised why we did not agree and we clarified codes.

The trustworthiness of the researcher's interpretations often requires participant confirmation (Fereday and Muir-Cochrane, 2006: 82). In my study, I discussed my interpretations of the children's ideas with practitioners, as they knew these children very well. In addition, the children, where possible, were asked to comment on my interpretations (Mason, 1996: 151). For instance, I observed a child walking away from the activity. I thought he was uninterested in the activity but when asked, he explained that the other children who were on the computer had not let him to play. Thus, what I might have interpreted as disinterest was a case of being unable to access the activity. This procedure (i.e., asking the participants to validate the researcher's interpretations of their own words) placed the epistemological privilege on the side of the participants (ibid, 151), by grounding the developed interpretations and analysis in the data. Furthermore, the child participants were epistemologically privileged, since they were the 'natives' who had first-order perspective on their experiences (Mason, 1996: 151). Subsequently, I was assisted in avoiding imposing my own preconceptions and a priori understandings about the phenomenon, by, for example, constant checking with the participants about their meanings and on whether my interpretations reflected their meanings.

A further dimension in this discussion is the theoretical lens of the researcher (i.e., their stand point including the analysis framework they use, inductive approach to data analysis) (Mason, 1996: 151). This will be addressed when discussing the TA and other related ideas.

4.2.2. Inductive Approach to Data Analysis

TA can be either deductive or inductive. Deciding which approach to follow in the conduct of data analysis is mainly driven by the research aim. In this study, my aim was to explore

children's conceptions, and the approach chosen was mainly inductive. That is, ideas were grounded in the data (Boyatzis, 1998; Guset et al., 2012).

Inductive analysis is 'a process of coding the data without trying to fit it into a pre-existing coding frame, or the researcher's analytic pre-conceptions' (i.e., the analysis is 'data-driven') (Braun and Clarke, 2006: 83). This indicative approach to data analysis is about developing explanations on the basis of accumulation of similar instances (Gibbs, 2007: 4). In my study, the approach was oriented towards describing and exploring the data set (Quset et al., 2012: 7), allowing the codes and themes to develop from the data set. Thus, the process entailed learning about the subjective experiences of the participant children (thoughts, feelings, and experiences) as they voiced them. However, according to Braun and Clarke (2006: 84), and Gibbs (2007: 5), the analyst cannot eliminate all their theoretical/epistemological backgrounds when coding the data. Subsequently, even the inductive analyst uses some form of deduction. That is, 'they are deducing particular explanations from general theories and seeing if the circumstances they observe actually correspond.' (Gibbs, 2007: 5) Thus, the researcher's theoretical and epistemological frameworks are still at work (e.g., research questions, the existing literature, exploring the phenomenon from the participant's perspective, etc.). In this study, while the theoretical framework and questions of my study provided some guidance to keep the analysis focused on areas of interest, the analytic framework was also grounded in the data.

4.2.3. Theme

A theme is 'a pattern in the information that at minimum describes and organizes the possible observations and at maximum interprets aspects of the phenomenon' (Boyatzis, 1998: 4). A code and a theme can be differentiated: the theme is 'an ***outcome*** of coding, categorization, and analytic reflection, not something that is, in itself, coded', whereas a code is a 'word or

phrase which captures action' or the essence of the text (Saldana 2009: 5-13). Identifying themes should be approached flexibly and consistently across the data set (Braun and Clarke, 2006: 82). What is regarded as a theme or pattern, and what its size should be is not totally demarcated by its prevalence across the whole data set and in every single data item (ibid, 82). Rather, the importance of the theme is in relation to capturing a key issue regarding the research question (Braun and Clarke, 2006: p82). Therefore, the researcher's judgment about what counts as a theme is important (Braun and Clarke, 2006: 82). Measuring the prevalence of a theme can be identified in different ways (e.g., the prevalence at the level of the data items, at the level of the whole data set) (Braun and Clarke, 2006: p82-83). In my study, the theme of play seemed to depict how the participant children perceived their own ICT experiences, and it prevailed at both levels of the data items (e.g., observations, discussions) and the whole data set, as will be demonstrated throughout this chapter.

The main strength of TA is its theoretical flexibility and accessibility to researchers. That is, TA is relatively independent from theoretical positions towards knowledge, making it usable within different theoretical and epistemological frameworks (Braun and Clarke, 2006: 79). TA is compatible with the interpretivist inductive framework of this study, in that TA aims to capture the patterned meanings in a data set through systematic procedures.

One major potential disadvantage in this type of analysis is projection. Projection is '"reading into" or "attributing to" another person something that is your own characteristic, emotion, value, attitude, or such.' (Boyatzis, 1998: 13, inverted commas in original) This problem of projection can be avoided by '(a) developing an explicit code; (b) establishing consistency of judgment- that is reliability; (c) using several people to encode the information and diversity of perspectives …..; and (d) sticking close to the raw information in the development of the themes and code' (Boyatzis 1998 13). Some of these techniques, such as reliability of data

analysis, member checking, and staying close to the collected data were discussed earlier (see section 3.9. page 143).

4.3. Stages of Thematic Analysis

TA framework, according to Braun and Clarke (2006; 2012), consists of six basic stages (see table 6) beginning with reading and re-reading the data in order to make sense of it, coding it, generating themes, to reporting the final report and publishing it for the audience. The data corpus for this study consisted of participant observation field notes and recordings, informal discussions, children's drawings and pictures. The participant observation included 77 observations, 42 and 35 in W and S settings respectively (see appendix 5). The field notes encompassed 103 notes, 23, 57 and 5 in S, W and B setting respectively (see appendix 6). Discussions with the children encompassed 98 informal discussions, consisting of 23, 25 and 50 in B, S and W settings respectively (see appendix 4). Drawings included 25 drawings from the three settings. All of the video/audio recoded material of children's activities and discussions with them were transcribed, and thus became texts. In addition, the children's verbal explanations while drawing and explaining their pictures were audio-recorded and subsequently transcribed (see appendix 8), so that these transcriptions could be analysed in the form of texts, too.

In this study, data analysis and data collection were concurrent, in that once an important pattern of meaning started to appear during the initial process of data collection and transcription, I aimed to explore it in subsequent fieldwork by talking to children and observing their activities. I did not wait until the data collection was compete to start analysing it. Rather, data collection and data analysis 'proceed[ed] circularly in reciprocal interaction because the data analysis drives[ed] closely sampling and information collection.' (Gobo, 2008: 227) This process of interaction between data collection and data analysis contributed to making the

process of data analysis authentic, since the patterns of meaning (i.e., themes) resulting from the process of data analysis represented the participant children's ideas. These resulting themes, which will be discussed below, were elaborated on by seeking more in-depth information from the participants, grounding them on the participants' views.

It should be noted that, as was acknowledged in the methodology chapter, this study was a sequential study which involved three iterations of data analysis (i.e., I carried out data analysis for nursery W, then nursery B and then nursery S). Then I integrated the data into one data set. I felt I was able to treat the data collected from three settings as one data set because I felt the similarities were more important than the differences. However, I realised that there were some issues in integrating the data sets (e.g., differences within and across individual settings might be put in the background) but I took care to draw attention to context in my reporting and to make clear in which nursery an observation or interview was recorded. Overall, having the entire data set in one place enabled me to see the commonalities and patterns of meanings across the settings without losing sight of the particular setting in which the data belonged.

Table 6: phases of TA (from Braun and Clarke, 2006: 89-91)

Phases of TA	Explanations
1. familiarity with the data/transcription	Transcribing data, and repeatedly reading through the data set
2. initial codes generation	Noting down ideas and features that are of interest
3. searching for themes	Looking at how different codes can be grouped together to form a theme
4. reviewing themes	Reviewing at the level of coded data extracts to ensure that the coded data extracts of each

	theme represent a coherent pattern; reading at the level of the entire data set.
5. defining and naming themes	Bounding the themes
6. producing the report	Providing an account of the story that the data convey, supporting the arguments and analytic claims that the researcher tries to make from the data

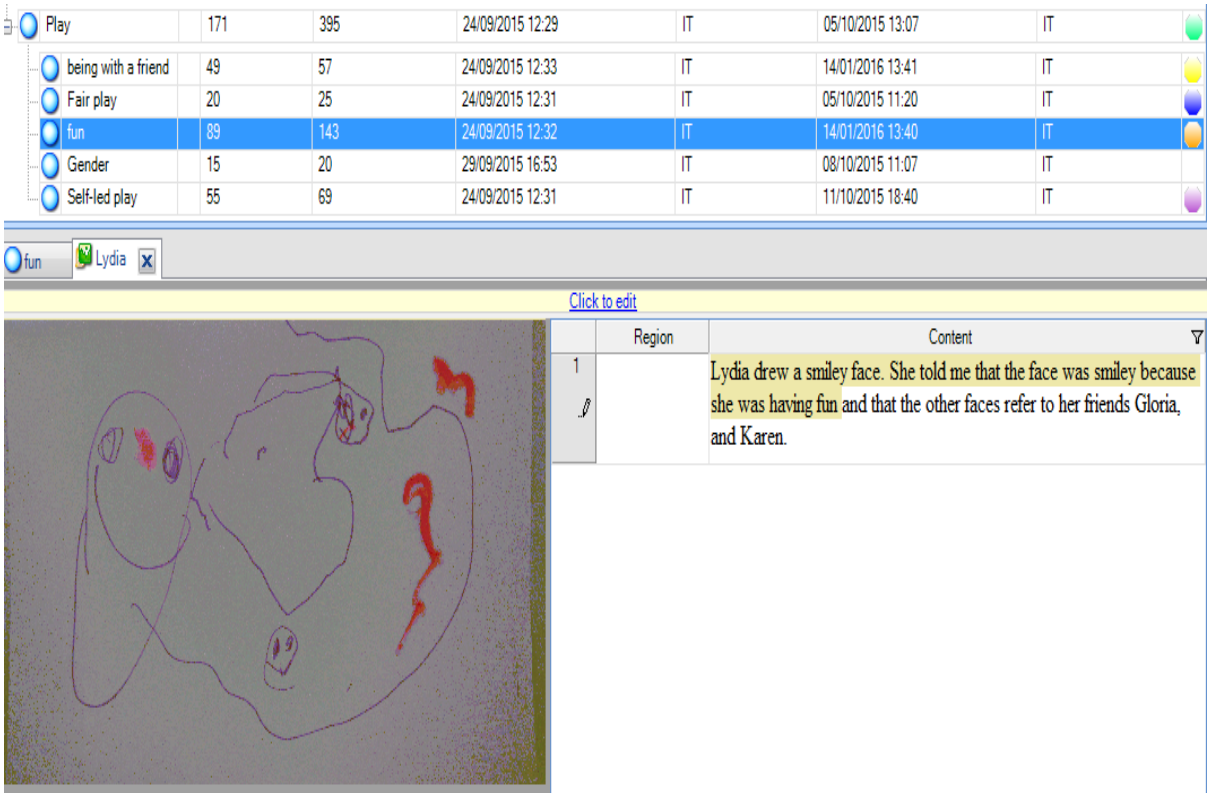
4.3.1. First Stage: Familiarity

During this stage of the data analysis, the researcher's main task is to become familiar with the data set. Reading through the text/s is the basic analytical technique (Quset et al., 2012: 21). The researcher adopts a 'listening stance' (i.e., listening to what the data say), in which the researcher examines the data carefully and is willing to change the direction according to new insights from the data (Gobo, 2008: 228). The process of familiarising oneself with the data set to be analysed requires the researcher to be immersed in the data set so extensively that they become familiar with nuances of it (i.e., gaining familiarity with 'the depth and breadth of the content') (Braun and Clarke, 2006: 87). This process of immersion involves actively reading and re-reading the texts, looking for patterned responses (i.e., themes) (ibid, 87). This step of reading once or twice or even more through the data set can be handy as it helps the researcher to start thinking about potential themes, noting down ideas for subsequent analysis (ibid, 87). Therefore, familiarisation forms 'the bedrock for the rest of the analysis.' (ibid, 87)

In my study, I started the process of familiarising myself with the data by transcribing all audio- and -video-recorded materials as they became available throughout the fieldwork. I gradually entered the data into NVivo 10 program. Then, I carefully read and re-read the whole data set,

making sense of what was going on, what was happening, and what these texts were about. Subsequently, repeated reading of the texts assisted me in getting to comprehend the texts. Audio and video recordings were transcribed either in the same day or within a week from its recoding, and field notes were jotted down on word documents on the same day, so that the memos recorded in the field were not forgotten. Transcribing the materials immediately or after a relatively short period of their collection not only facilitated my familiarisation with the data, but also helped to interlink the processes of data collection and data analysis. Sometimes, of course I got behind in transcribing due to a variety of reasons such as illness, and unexpected opportunities (e.g., forest trips, visits to a sport centre), but I was able to catch up within days. With regards to the children's drawings, the children's own explanations of their drawings were recorded, transcribed and used in coding and analysing the drawings. For instance, figure 2 shows Lydia's drawing of herself playing with the computer. Based on her ideas and preferences, this drawing was coded as fun and a preference to play with friends.

Figure 2: coding Lydia's drawing



4.3.2. Second Stage: Generating Initial Codes

After I spent time reading and re-reading through texts (i.e., transcribed materials) and familiarising myself with them, I moved on to start developing potential codes. At this stage, decisions about the coding process (i.e., inductive or deductive coding) had to be made. As explained earlier, the coding in this study was data driven. Thus, themes were derived from the data, although the coding process was not purely inductive (i.e., there was a dialectic relationship between the theoretical framework and the analytical framework). I worked systematically through the data set, paying attention to each single datum (i.e., data item) and identifying areas in the data item that might form the basis for subsequent patterned meanings across the data set (Braun and Clarke, 2006: 89). For example, the excerpt in figure 3 shows data coded under ‘like’ ICT activities. In looking at all my data set, I could see the word ‘like’ was coming up repeatedly. Therefore, I created a code ‘like’ to look at all these instances

Figure 3: code 'Like' in respect to computer activity

<Internals\\discussions with children\\B setting discussions\\interview with Jason 17_03 14> - § 1 reference coded [3.54% Coverage]

Reference 1 - 3.54% Coverage

Jason: children like to play on it

<Internals\\discussions with children\\B setting discussions\\Elena> - § 2 references coded [3.36% Coverage]

Reference 1 - 1.67% Coverage

Elena: I like to play on the computer

<Internals\\discussions with children\\W setting discussions\\Alice 27 07 13> - § 1 reference coded [0.82% Coverage]

Reference 1 - 0.82% Coverage

Alice: I like the be-bot because you can get it to move around itself

<Internals\\observations\\observation in S setting\\Colin 14 02 14> - § 3 references coded [6.16% Coverage]

Reference 1 - 2.93% Coverage

Hani: I see you quite a lot on the computer Colin?
Colin: yah
Hani: why do you think that?
Colin: because I like playing games

My coding of the transcribed data were not limited to the descriptive level (i.e., just descriptions of the textual data) (Braun and Clarke 2012; Gibbs 2007). Rather, I also attempted to 'move beyond the manifest, literal level toward becoming interpretive' (Boyatzis, 1998: 17), and thus, theorising about it in order to uncover the children's meanings. For example, figure 3 shows a sense of coded text around liking ICT activities. These are simple descriptions but do not throw much light on the reasons why children liked these activities. At a more interpretative level (see figure 4), the coded text helps explain why children liked computer activities, and they associated them with 'fun'. However, many of these statements are almost tautological: 'I like it because it is fun'. Further explanation was needed to understand what children meant by 'fun'. By reading through the whole data set, I was better able to understand fun as associated with several qualities such as being in control, choice, children present in the activity and their role.

Figure 4: latent coding level: Fun Play

<Internals\\discussions with children\\B setting discussions\\Henry> - § 6 references coded [5.55% Coverage]

Reference 2 - 0.62% Coverage

Henry: because it is really fun

<Internals\\discussions with children\\B setting discussions\\Nil> - § 3 references coded [9.12% Coverage]

Reference 1 - 2.81% Coverage

Nil: because it [play on the computer] is much more funner

<Internals\\discussions with children\\B setting discussions\\Walter> - § 2 references coded [14.50% Coverage]

Reference 1 - 1.58% Coverage

Walter: I like it because it is fun

<Internals\\discussions with children\\W setting discussions\\Chen 15 08> - § 5 references coded [5.01% Coverage]

Reference 5 - 0.27% Coverage

Chen. Computer is fun, really fun

<Internals\\discussions with children\\W setting discussions\\Chris 14 08> - § 6 references coded [6.17% Coverage]

Reference 3 - 0.90% Coverage

Chris. I play the lingoshow, it is fun. Because the lingoshow is fun

In addition, I did not ignore instances that departed from the prominent themes (e.g., situations when children got upset or pushed, etc.). For instance, although most of the children perceived their ICT activities as a form of play, some children tended to perceive it as 'just watching', or sitting. However, these children also tended to use the word 'play' when observed in both their natural activities, and under certain circumstances in their activities with technology. Therefore, discarding these instances from the process of analysis would have blinded me to how the children characterised play in these activities.

4.3.3. Third Phase: Searching for Themes

While the focus in the previous stage was on the coding of the data at the latent and thematic levels, the focus now broadened at this stage to identify and search for themes. The various codes developed in the previous stage were arranged in possible themes and all the relevant codded data extracts were collated within the identified themes (Braun and Clarke, 2006: 89).

I started looking at how different codes could be grouped together to form a theme (ibid, 89). For example, the code 'like play' with ICT was collapsed under the play sub-theme fun. Therefore, whereas some codes became themes, others formed sub-themes, and still others modified or discarded (Braun and Clarke, 2006: 90). For instance, while the code 'playing with a friend' was initially identified as a theme, it became apparent later on that it could be a sub-theme under the umbrella theme 'play', since it formed an element of their overall play. Thus, by developing this set of potential themes, sub-themes and the coded data extracts coded under each of these themes, this phase came to an end (ibid, 90). Hence, in terms of INVivo 10 programme (see appendix 10), I created two parent nodes, play and not play, and child nodes. The child nodes of play included self-led, fair, friendship, fun and gender. The child nodes of not play included no-influence, boring, and unfair.

4.3.4. Fourth Stage: Reviewing Themes

According to Braun and Clarke (2012: 65) and Clarke and Braun (2013: 122), the process of revising potential themes involves two steps: first checking a theme against the collated extracted data items, and second checking themes against the whole data set. This is a process of ensuring that each developing theme 'work[s]' in relation to its subsumed codes, and the whole data set (Clarke and Braun, 2013: 122 commas in original). In terms of my study, the first step involved checking whether the developing themes (i.e., play and not-play) worked in relation to their subsumed extracted codes. That is, it entailed checking whether these themes addressed the research question as to how children perceived their ICT experiences. Thus, a process of refining the themes and their related codes, collapsing some themes and/or codes, and discarding some codes, clarifying the boundaries of the themes (i.e., what a theme included and excluded), was undertaken (Braun and Clarke, 2012: 65). For instance, I collapsed the codes of fun, happy, and 'like' the activity into one code, fun, since all these described the same

aspect of children's play. The final end product of this step was to develop 'a distinctive and coherent set of themes that work[ed] in relation to the coded data extracts' (Braun and Clarke, 2012: 65). That is, I developed two clear themes of play and not-play which were coherent, in that each theme was thickly described and carefully considered that its codes followed in a reasonable manner.

In the second step of the fourth phase, I checked the developing themes in terms of whether they 'worked' in relation to the whole data set. Here, I found that the two themes reasonably captured the whole data set, reflecting the essence of what the children deemed their experiences with ICT activities to be. That is, the two themes seemed to capture the young children's perceptions of their own technology-related experiences.

4.3.5. Fifth Stage: Defining and Naming the Developed Themes

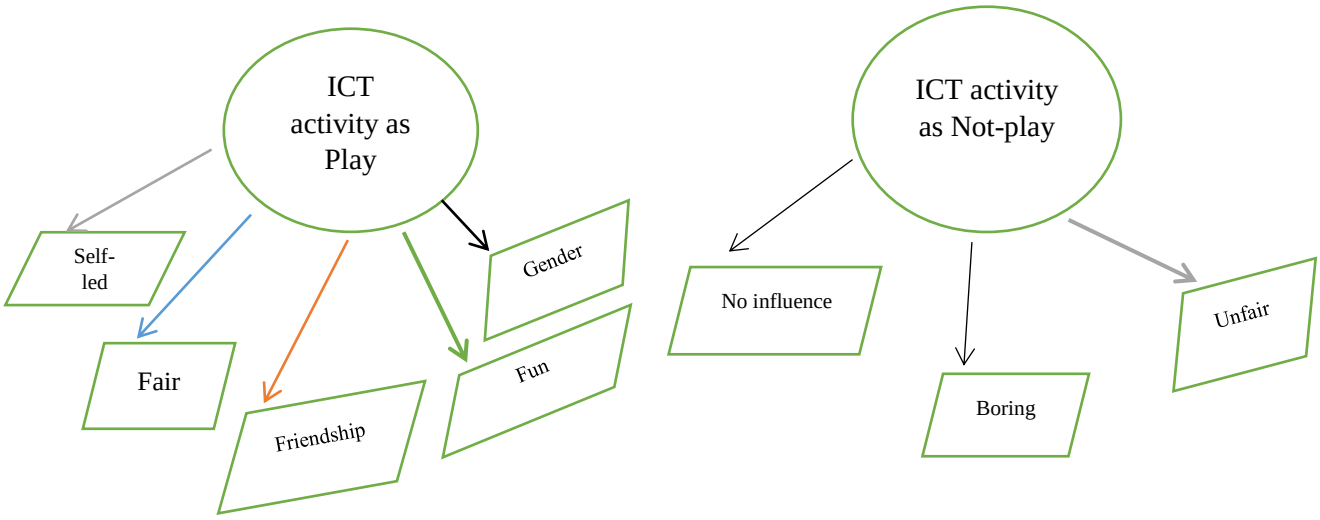
This phase involved developing themes and their related data extracts. Each theme (i.e., play and not play) was defined so that it could be bounded. For instance, the theme play was defined as 'doing something [at ICT resources]', as defined by the children, and the development of this theme entailed subsuming the related data extracts under its sub-themes (i.e., self-led, fair, friendship, fun and gender). The other theme, 'not play', featured young children's discomfort at being unable to play. The related data were coded under three sub-themes: no influence, boring, and unfair.

4.3.6. Sixth Stage: Producing the Report

The final phase entailed the production of the report, although it started from the initial familiarising phase and continued through the different stages of data analysis. The order of presenting the themes was based on the intertwined relationship between the data collection and data analysis. At first, it was not intended to sort out the developed themes in a logical

order. Rather, the aim was to try to capture the essence of children's meanings attached to their activities featuring ICT, and then, going back to the field to try to explore and develop these new ideas. Finally, it became apparent that the theme of play was the umbrella term as the other developed sub-themes just represented a variety in the children's play based on their explanations, individual preferences, and interests (see figure 5 for the final thematic map of two main themes). The other theme, not-play, represented what the children considered to be a 'boring' instance of ICT-related activities, which lacked the exciting elements of what they characterised as play (e.g., having no influence over the activity).

Figure 5: final thematic map, showing the final two main themes and their sub-themes



4.4. Summary

In this chapter, I discussed the analytical framework of this study. It built on the process of TA, as suggested by Braun and Clarke (2006; 2012). Accordingly, the data set of this study was analysed following the six stages of TA, which were explained and followed in developing the study. This process of analysis resulted in two themes (i.e., play and not-play) capturing the essence of ICT-related experiences from the children's perspectives. In addition, the

trustworthiness of the data analysis was considered and ensured following some strategies such as using quotations from the fieldwork, and member checks. The findings will be discussed in the next chapter under the two themes which developed from this analysis.

5. Chapter Five: Findings

5.1. Introduction

The chapter is organised as follows. First, the overarching theme of play will be presented and then, its sub-themes will be discussed. Second, the not play theme alongside its sub-themes will be presented. The chapter concludes by summarising the main ideas discussed.

As explained in the previous chapter, the data were treated as an integrated corpus. Thomas (2011) and others have drawn attention to the benefits of exploring differences within individual cases. I was conscious of these benefits but the commonalities across the settings seemed to me more important. Indeed the really striking issue was that child attached similar meanings to play in every setting. However this was only clear as I had carried out cross case and within case comparisons.

5.2. First Theme: ICT Resources are 'to play on'

The children perceived the different ICT resources available (see tables 3 and 4 page 140) across the three settings as tools for play.

Yang: [asking the practitioner] 'I want to play on the computer' (09/07/2013 W setting)

Tylor: 'we play on it [IWB]' (20/05/2013 W nursery)

Dale: '[when shown his picture listening to a CD, he replied happily] that's me playing CD player' (23/06/2013 W setting)

Peter: 'they [a group of children at a nursery laptop] are playing computer' (14/04/2014 S setting)

Gloria: '[when asked by a practitioner to put her camera aside she replied] But I want to play with the camera' (12/07/2013 W setting)

Steve asked, 'Hani, would you like to play with me? Play with my phone?' 'Yes of course' I replied, 'but after I finish reading Elena's story, ok?' Steve nodded his head and joined us. (26/11/2013 B setting)

Erica with her mum interred the pre-school room. Erica gave her mum a big cuddle and then went to have her breakfast. Then, this short conversation took place between her and the practitioner:
Sally: what do you feel like doing today Erica?
Erica: I like this [pointing at her bowl]
Sally: yes Erica, but I mean what do feel like doing today in the nursery?
Erica: play cbeebies (28/04/2014 S Nursery)

When shown a picture of herself in a Bee-Bot activity, Lydia happily described what she was doing as 'playing Bee-Bot' (26/05/2013).

Paul: [addressing Erica who was playing] can I play on it [the laptop computer]? Can I play? (S setting 14/02/2014)

Gavin [addressing Deborah who was playing] can I play after you? Can I? Can I? Can I play? (S setting, 13/12/2013)

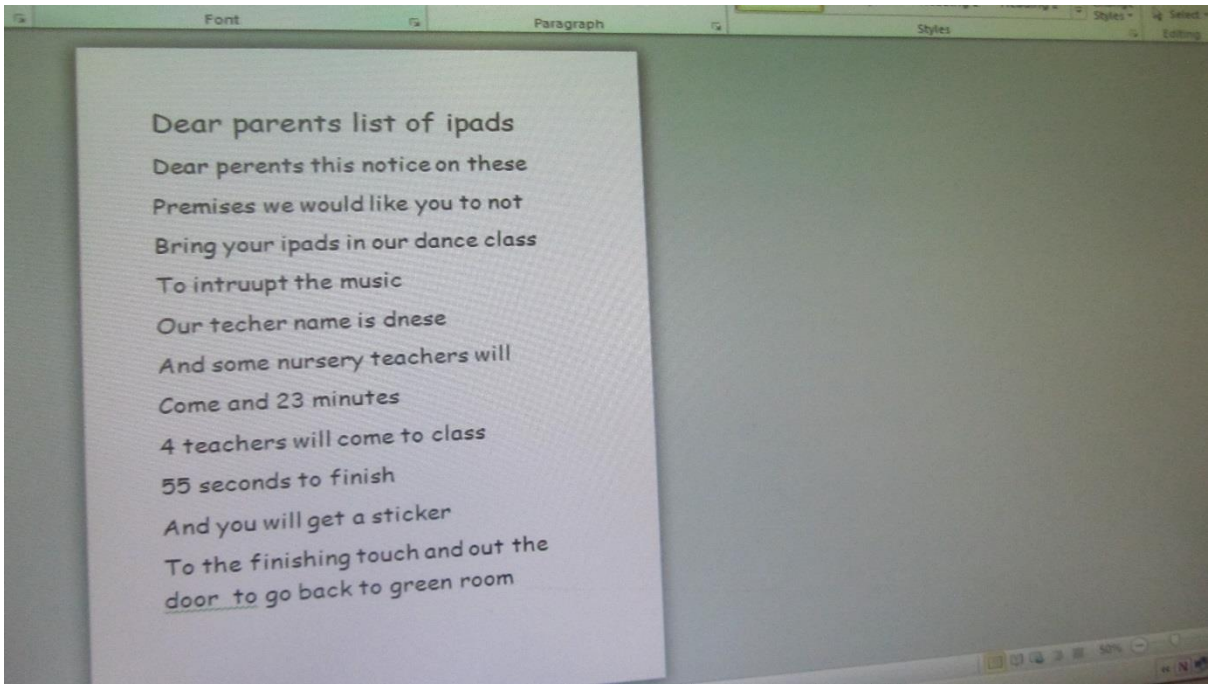
Regardless of their gender, ethnicity and socioeconomic background, the children used the word 'play' to describe their activities with ICT resources. Indeed, as the above field notes show, 'play' was how these young children made sense of their ICT experiences. Their use of this word, 'play', seemed also to colour every activity they carried out, whether it was inside or outside, for example, running outside, cooking, taking pictures, climbing, socializing with other children, pretending, painting, drawing, etc. Just as they played in general, the children played with ICT resources. From repeatedly observing children and the natural flow of talk among them, a running theme was that what they were 'doing' with ICT resources was seen as 'play'.

I observed Yang asking the practitioner, Jane, whether he could 'play on the computer' (14/05/2013 W setting). But Yang could not 'play' at the computer, because Claudia, a practitioner, was using it to write a small list of items and materials as a preparation for a custom party. Yang sat next to Claudia, and waited till she had finished her 'work', and, eventually, he had an opportunity to 'play on the computer'. He opened a 'word' document, started writing, and then printed this document (see figure 6). Chen, his friend, became interested in the activity and wanted to do a copy like Yang's. Yang offered to help him, since

Chen was not able to write so well as Yang. Yang made him a copy and printed it, and then both of them put their copies in their drawers to take home.

What is interesting in this example is that a similar task had just been carried out by a practitioner, Claudia, in terms of 'work', but here it was described by Yang as 'play'. This will be discussed later.

Figure 6: Yang's writing at the computer



In another example, Gloria and other children were watching Pirates on the IWB. Since it was almost time for the children to get ready for tea time, Jane informed them that she would be leaving the IWB on, so that they could come afterwards and continue watching Pirates. Most of the children did not agree. 'I want this song. I want the song [We're Going to the Zoo song]', cried Gloria. 'Ok we can watch it again but after watching Pirates so stop moaning please', Jane said. Then, as the children left the IWB, Gloria picked up a pretend child camera and started pressing its buttons, pretending to be taking pictures. 'You should put it aside', said Lora, who was sitting at the table, ready for tea time. But Gloria carried on taking pictures. 'Jane, Gloria don't [sic] stop taking pictures', complained Lora. 'You need to put it aside!'

Jane said firmly. But again Gloria carried on. Then, Jane came and took the camera off her. 'But I want to play with the camera', cried Gloria. 'Yes but not now so go and wash your hands', Jane replied. (12/07/2013, W nursery)

In terms of this routine activity (i.e., tea time), the children were required to follow certain rules such as washing their hands, sitting on their specified chairs, waiting for their food, acting as told, etc. Doing other things such as 'playing with the camera' was an activity that violated the rules of tea time. The significant point of presenting this example from my fieldwork was that Gloria perceived her actions of pretend taking pictures (i.e. happily pressing buttons and pretending to take pictures) as 'play'.

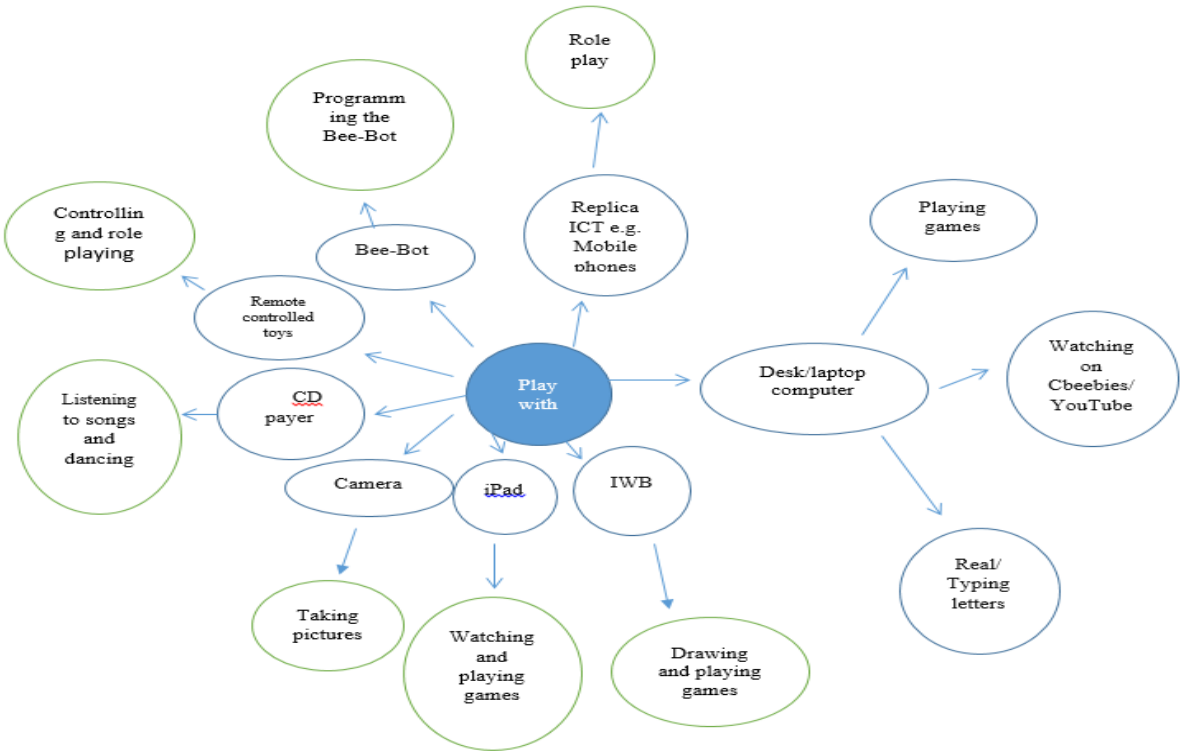
Only in S setting was there an iPad, which the children could use from time to time. This iPad was brought to the nursery by the head-teacher. She believed that all the children should have equal opportunities to use these resources. So if some children could not have a 'turn' to play with the computer, then they would be able to 'go on' the iPad. In an episode featuring the children with the iPad, two girls were sitting at a table watching Ugly Duckling on Cbeebies. Reading through this episode, it may be seen that the two girls characterised their experience of watching at the iPad as play. They perceived not only what they were doing, but also what the other children intended to do, with the iPad as play.

Fieldwork observation **(**13/12/2013 S setting**)**: Erica and Bella were watching Ugly Duckling on an iPad. And the Ugly Duckling finished, Erica wanted to 'play' something else:
Erica: we are going to play a new game, are we?
Bella: [nodding her head. This new game is watching 'Topsy and Tim'.]
Erica: it is Topsy and Tim. Topsy and Tim
Peter: [sitting nearby observing what the girls were doing] Topsy and Tim Topsy and Tim
Bella: you are not playing [pause]
Erica: and, and, and we are playing this on cbeebies [holding the iPad and showing Peter the game, 'Topsy and Tim'] are not we Bella?
Bella: yah

The above episode featured two girls watching a story in their free-play time. Bella, from time to time, confirmed that she wanted to 'play' this activity with her friend Erica only. For her, this was 'playing', since when she and her friend Erica were watching Topsy and Tim, she blocked Peter from joining in by saying 'You are not playing'. Erica's agreement with Beth's attempt to prevent Peter from 'playing' was an acknowledgement that she also perceived this as 'playing'. Consequently, their use of the word 'playing' was not only how they conceptualised their activity with the iPad, but also how they conceptualised what the other children would do if permitted to join in. This episode also clarifies the active and social dimensions of play activity. When Bella said 'No, you are not playing', she expressed a preference for friendship in the activity. The other children were not allowed to play. This was how Deborah explained the situation to me when I asked her about the reason why Bella did not allow Peter to watch: 'Erica is Bella's best friend' (Deborah 13/12/2013 S setting). The role of friendship in ICT activity will be further discussed in more detail in a separate sub-theme.

Based on what has been discussed, play was how the children conceptualised their ICT experiences, and captured their actions, interactions, preferences, intentions and feelings in the context of their ICT activities. Figure 7 shows the types of ICT used in the settings and the purposes for which they were used. At the centre of these activities was play.

Figure 7: illustration of play theme



This finding (i.e. the participant children perceived their ICT experiences as play) resonates with previous studies. Sheridan and Pramling-Samuelsson's (2001) study of pre-school children showed that play was what children wanted to do if they had the opportunity to make decisions about their activities in the early childhood setting. Regardless of the quality of the early childhood setting, in Wiltz and Klein's (2001) study, children demonstrated a clear preference for play and play activities. In my study, the different real/replica ICT resources available to the children in the settings were 'to play on', and it was play that the children 'did' with ICT resources.

Nonetheless, many of the children were aware of the fact that the desktop computer was not just for them to play with:

Rudy: for playing and let the grownups do, and erm to and the grownups to do important things
H: and children what do they do with it?
Rudy: they play with it. (informal conversation, 04/12/2014 B setting)

They showed an awareness of the fact that the practitioners 'need to work on the computer' and that 'we [the children] want to play on the computer' (Yang, 16/08/2013 W setting).

Furthermore, they believed that teachers ‘don’t play on the computer, only children’ (Peter, 08/02/2014 S setting).

5.2.1. First Sub-theme: Self-led Play

Louie: I just like to play on my own (04/04/2014 S setting, informal conversation)

Deborah defined play in the nursery as ‘doing something’, and playing with the computer as ‘doing something on the computer’ (informal conversation, 17/03/2014, S setting). It was necessary, however, to explore the nature of what this ‘doing something’ was. Reading my fieldwork notes and observing the children’s ICT-based play, whether free or teacher-supervised, I could see that they wished to translate what they viewed as play into play actions. This connection will be elaborated throughout the chapter. But first, their preference for actively self-leading their activities will be introduced, and illustrated by the children’s comments and fieldwork observations.

The children clearly expressed a preference for self-leading their play by doing, controlling, pressing, choosing, etc., in what they described as ‘play’ with ICT. This preference for active play could be very clear when considering the fact that they ‘wanted’ to be in charge of the activity (i.e., what is described in the literature as the self-controlled element of play). Thus, although, initially, all the children referred to what they did with ICT resources as play, further examinations of the data corpus and further discussions with them revealed that not everything they did with these resources was ‘play’. In particular, their wishes to self-lead the activity needed to be met if an ICT activity was to be regarded as ‘play’. Lacking this active role would render such activities as ‘boring’ and hence not regarded as play. This final point will be considered in more detail when discussing the other theme, ‘not play’.

In all of the encountered episodes of the children’s ICT-related play, the children expressed their wish to be themselves ‘doing something on the computer’ (as Deborah put it) and their

intention to be in charge of or control the 'play' activity. One such example involved Leo. Whenever someone was engaged in a computer activity, he stood behind them, watched what the children were doing, and, in many instances, left the activity, asking me sometimes 'Hani, play outside'. I decided to inquire about the reason for his subsequent withdrawal from the activity. 'Because they [the other children] don't let me play' Leo explained (informal conversation, 23/07/2013 W nursery). His intention in the context of this activity was to 'play' (i.e., to be actively self-governing it) but he could not because other children were already either playing or waiting for their own turns. Feeling dissatisfied with not being able to 'play', he chose to leave and 'play' something else instead.

All of these instances where Leo was unable to play represented crowded play situations. Such crowded situations included at least four or five children. In front of the computer in W nursery, as was the case in the other two settings, was a small red bench, and only two children could sit on it. Other interested children could bring child-sized chairs and sit wherever there was space for them to watch.

It may be the case that the computer, as a head-teacher commented, 'is something all the children want' (Jude, S setting 02/02/2014). Corroborating this, Jane, a practitioner, commented that all the children 'love to be in charge' (W setting 09/06/2013). Mark described the crowded situation as 'squeezey'[sic] (informal conversation, 20/06/2013 W setting). As may become clear, there seemed to be a tension in this crowded situation between the player trying to keep playing, and the other watchers, who were for the most of the time aiming for being more than watchers.

Another strategy some of the children followed to express their desire to lead the activity was to leave and come back to the activity several times checking for an opportunity to 'play'. They made a serious attempt to be in charge. Every time they came and found the computer occupied,

they would immediately leave it, or stand behind, very briefly watch, express their preference for a programme and/or then quit to play something else, and then come back again.

Fieldwork observation (12/04/2013 W setting) Kate was playing 'get squiggling letters' after a practitioner had helped her turn it on. Many children [Molly, Chen, Mark, Hyun, Youn, Lora, Gloria, Chris, Yang and Simon] gathered around, watching and curiously asking for a go. Kate printed her picture and was instructed by a practitioner to give up her place to another child of a group of children waiting for a turn:
Chris: after Yang, it is my turn!
Ann [practitioner]: after Yang is Chen and then Chris...
Molly: [feeling bored] Youn come on, I need to tell you something. [Molly held Youn's hand, and both went to the home corner]
Chen: [also left the activity, commenting with a frown face] no one let me play, I'm boring [sic]'
This episode continued till it was Tea Time. Chen came back to the activity. Other children were watching and arguing about whose turn was next:
Chris: after Hyun is my turn
Chen: after Hyun is my turn [with a frown face]
Chris: no, after Hyun's turn is Yang's turn. After Yang's turn is my turn and then yours
Yang: no I have already had a go
Chen: no [his face became frown and he wanted to leave the activity]
Chris: [noting his friend's, Chen, emotional response] after your turn ok?
Chen: [nodded his head with a smiley face]
Kate: everybody, everybody have [sic] to come off the computer
[Duration 28 minutes]

This fieldwork observation may be viewed as typical of the children's interactions in the context of the computer. Chen's reaction (i.e., 'no one let me play') to the situation of not being able to conduct his own play (i.e., to control the activity) illustrated his intention when leaving the activity. He found the experience of watching the activity and waiting was passive and unenjoyable. A few minutes later, he came back to the activity hoping for a chance to have 'a go'. The children were arguing about whose turn was going to be next. Chris, who had already had a turn, wanted to have another one, and so did other children who were there. Chen rejected Chris' suggestion, felt upset, and wanted to leave the activity again. Chris, noting the signs of emotional discomfort on Chen's face, suggested that he would have a turn but after Chen. However, Chen did not have an opportunity to 'play', since it was tidy up time. The experience

remained upsetting for Chen. For him, there had been play that he could not take part in, since he was unable to exert any influence on the activity (e.g., control the mouse, choose a preferred program). He wanted to be a 'player', as the children put it, as will be discussed below. Other children (e.g., Chris, Gloria) felt likewise.

The children differentiated between two distinctive roles in the context of ICT play (i.e., the watcher and 'the person who plays') (informal discussion, Gloria 01/08/2013 W setting). I came across this point while Gloria and I were talking about her drawing (see figure 8). First, I will present a brief transcription of the discussion that went on between us after she finished her drawing.

Figure 8: Gloria's drawing of herself playing at a computer

Hani: what do you do on the computer?
Gloria: play something
Hani: anything else?
Gloria: somebody watch
Hani: and somebody
Gloria: play[sic]
Hani: who do you prefer to be, the person who plays or the one who watches?

Gloria: I don't mind whoever the watcher
Hani: let's have a look at your drawing, Ok?
Gloria: here is my face, my hair and my clothes. Here is spaghetti hhhh [laughing and referring to the plugs]
Hani: ok
Gloria: here is an extra face. If it is sad it means no and if it is happy it means yes [then she put X on the smiley face and V on the sad face]
Hani: why do you think you have got here a sad face?
Gloria: because I do not want anybody to annoy me (informal conversation, 03/05/2013 W setting)

Other aspects of the children's play started to appear. Gloria characterised the child who sat next to the child in charge of the activity as a 'watcher', a position she did not like in this context. Her intention of the activity was to 'play' or to be the 'person who play[s]' (i.e., to be in charge of the activity). She did not mind the presence of other children as watchers so long as they did not undermine her active position. But when their presence became a source of disturbance (i.e., in this case, the children's presence meant a potential threat to her role as the playing child and consequently losing her active role), she would become annoyed. The children's experiences involved defending their play, which will be explored later.

The focus is now on the self-led element of play, and on the children's ways of stressing their positions as the leaders of the play they were conducting.

Fieldwork observation: (15/07/2013 W setting)
The children were sitting at the computer [Justine's House] Hyun was in charge. Rich, Leo and Mark stood behind Hyun and Yang.
Yang: when it is 12 you have to stop ok? ok? You'll have to press this one it is really funny [pause] press that one it is so funny. [Mark and Leo left, Ali joined in]
Yang: oh, you're nearly running out of time [No response from Hyun]
Rich: we're going to stop you [singing along the program]
Mark and Leo came back to the computing activity
Yang: we're going to stop you, we're going to stop you [singing along the program, pause] let's slow you down shall we? [pause] but sorry you are not helping?
Leo: Sorry you're not helping?
Mark: [addressing Leo] let's play that [they went to play Bee-Bot. But in less than a minute Mark returned back to the computing activity]
Yang: that one is so funny

Rich: ehh that is the,
Yang: do that one, do that one? It is so funny [pause just that house I'll show you]
Hyun: no I do
Yang: just this house, just that house please [pause] now press that one it is a webcam, press that one
Mark: ahahaha play again
Yang: press a different button press the button the button [Children are laughing when the computer made funny sounds]
Leo: do it again
Yang: wacky, wacky, Justine wacky, [pause] I'll show you how to play it? I'll show you look [tried to hold the mouse]
Hyun: nohhhh [he did not know which button to press]
Rich: Claudia look what happened?
Then it was Yang's turn
Hyun: that one, that one
Yang: I'm going to choose, I'm going to choose [pause] Wacky, Wacky Justine [Children laughing]
Rich: watch that, watch that?
Yang: no I don't want to
Computer: wake Justine
Yang: wake up Justine
Computer: [voice of tickling. the children laughed]
Then play continued till Rich decided to have a turn
Rich: I want a go, I haven't had a go? I haven't had a go, I haven't had a go, Claudia, I haven't had a go?
Claudia: Yang, let Rich have a go now?

This episode shows how the player's wish to lead their own play put them in a privileged position, one in which they could express their agency. In episodes like this, children ignored other children's suggestions, made their own decisions independently from other children, and controlled the technology, for example, repeating games that they enjoyed. Their privileged status was seen as in Yang's comment 'I'm choosing', or 'I don't want to' when receiving suggestions from Rich. However, dismissing other children's wishes and suggestions by ignoring them was met by these children with a sense of anxiety. When this happened, they made complaints and comments, and signalled their own preference for having a leading role. As the above episode shows, Hyun refused any assistance from Yang, even when he could not carry on. Yang also confirmed that he would choose the programme himself, disregarding

Hyun's and Rich's requests. He was choosing, talking and sharing with the children the happy experience of playing Justine House games, leaving almost no scope for other children to participate. On the other hand, Rich decided to complain to the teacher to get his wish to 'play' fulfilled. This finding resonates with that of Wing's (1995) study, which shows that nursery-aged children used the self-initiated element to draw a distinguishing line between their activities and the teacher-led activity. In my study, the children who were playing the activity 'want[ed] to do it' themselves (informal conversation, Colin 10/12/2013 S setting), then the other children had to wait for their turn. This final point (i.e., having to wait) takes us to how the children conceptualized their collaboration and friendship in the context of play.

5.2.2. Second Sub-theme: Fair Play

Walter: I want everyone sharing me (informal conversation, 13/01/2014 B setting)

Rich [in a computer activity, responding to Yang's request that it was Yang's turn]: mine, not only you I want to have a turn!! (09/07/2013 W Setting)

While self-led play demonstrated the children's desires for agency expression in ICT play, this sub-theme, fair play, related to the moral development of the children. It further investigated play in relation to the social and pedagogical aspects of the early childhood setting, leaving the issue of friendship for a separate sub-theme. From the first sub-theme, we know that the children strived to be in charge, and that the 'playing' child strived to keep their position as the player who would act in accordance with their own preferences almost uninfluenced by suggestions from other observing children. But what lay behind the role of these 'watchers'? And what made the 'playing' children behave in the way they did? A short discussion with a child will be introduced, and then my reflections on it will be presented.

Hani: who do you like to be with you?
Colin: my friends Paul and Brad
Hani: suppose you are playing on the computer what can your friends do?
Colin: play

Hani: so I think you like sharing on the computer?
Colin: NO
Hani: why do you think that?
Colin: because I will get send to the naughty chair [pointing with his hand at the place where the practitioner normally commanded him to sit]
Hani: so why do you think you will get sent to there?
Colin: I want to play
Hani: so I think you like your friends to be with you but not playing?
Colin: yah
Hani: so what can they do?
Colin: play on their own
Hani: so you have a turn and they have a turn
Colin: yah (informal conversation, 29/04/2014 S setting)

The children desired to be 'doing something' (i.e., actively self-leading their play). This preference was so paramount that it created tensions with the children who were watching and/or waiting for a turn. As the previous transcript shows, Colin liked to be with his friends, Paul and Brad, in the context of computer-related play. However, while their presence in this activity was desirable, he did not want them to threaten his leading status in this play. He 'want[s] to *play*' stressing that he himself sought to be independently in charge of this play. From his own perspective, the motive for his behaviours (i.e., playing in the presence of his friends but without allowing them to interfere) was that there was a principle of play on an equal basis, based on turn taking by all the children.

The children themselves were aware of this principle. Specifically, they knew their preferences in the context of this play may not be taken into account. Here is an example from fieldwork observation.

Fieldwork observation (27/07/2013 W setting)
Yang: it is a very good drawing Kate. [pause] it is a very good drawing Kate
Ann [a practitioner]: it's really good
Yang: do white
Kate: let go? [Gloria wants to help Kate with choosing a colour]
Gloria: no, no the one at the end

Chen: this one, this one
Ann: just a second, if you come down a little bit, you can see the colours. Just a second [Ann controls the mouse]
The program: more things to draw
Yang: more things to draw
Ann: now you can draw
Yang: there are more things to draw. [pause] that one is very funny!
Hyun: I like that one
Yang: where is the blue?
Ann: the blue then!!
The Computer: you are doing a great job
Yang: more things to draw this
Ann: which colour?
Yang: more things to draw this!
Gloria: it is not up to you Yang!
Jan: it is up to Kate
Gloria: yah
Yang: I do not think you will see that because it's too long
The computer: you are doing a great job
Molly: go slow
Gloria: yellow is my favourite colour, Kate
Youn: yellow is my favourite colour
Yang: I do not think you can see yellow
Now it was Yang's turn. He chose Squiggling letters on cbeebies
Gloria: what does that main, Yang?
Yang: it's broken
Gloria: [after a minute] press again, again?
Yang: no
Gloria: then click
Yang: I know!!!
Gloria: I'll do it then? [She wanted to watch Swashbuckle]
Yang: I don't want to watch it!! I want to choose what I want to do.
Gloria: I've been waiting for so long!!!
Hyun: and me

In the above fieldwork example, while Kate was playing, 'Make a Picture' on cbeebies, some of the children made comments and suggestions about the play. Mostly these were ignored by Kate who was occupied by colouring her picture. When Yang insisted on her doing more things, he was alerted by Gloria to the fact that 'it isn't up to' him, something he was aware of.

But even then, when it was Yang's turn, Gloria insisted on watching Swashbuckle. Yang firmly confirmed that 'I don't want to watch it!! I want to choose what I want to do!!' Being aware of the principle of turn taking did not prevent the children from ignoring it. This had consequences as when Gloria and Hyun complained that they were waiting too long.

Another issue about the fairness of their play can be inferred from the children's justifications for trying to have a 'turn'.

Fieldwork observation (16/07/2013 W setting): Youn became in charge of the Bee-Bot. Chen and Rich came. Rich wanted to join in. Youn kept blocking his attempts to touch it
Rich: [protesting] you can't just have a go!! All of us!! [he put his hand on the Bee-Bot but Youn removed it] but you have a very, very, very long time!! So you're stupid [she kept blocking him] you've had a very long time!! [Then Rich pulled the mat towards him and Youn started to get upset]
Youn: mmmmm [trying to pull it towards her, her voice getting louder]
Rich: stop!! [took it off her]
Youn: my turn my turn!! mmmhhhh [crying]
Hyun: [her twin brother, heard her sound crying] nohhh [came and took it back off Rich and gave it back to Youn]
Rich: you're naughty [inaudible] poo [they almost started to punch each other] Claudia, Claudia, Claudia [complaining to a practitioner. Eventually, he left]

This episode could be typical of what was going on between children. Rich's nonverbal attempts at having a turn were met by Youn's nonverbal resistance. She wanted to carry on with her play. Having his wishes unsatisfied, Rich chose to challenge Youn and attempted to take the Bee-Bot off her. Being unable to fulfil his desire to control the activity, and being met by a constant prevention, he sought to revoke one aspect of nursery's rituals (i.e., sharing). Normally, when a situation like this happened, the children who were trying to have a go would assert that 'we need to share'. This was in fact an acknowledgement that this play equipment belonged to 'all of us', and that the children needed to play on an equal basis. Rich angrily left the activity, after being confronted with Youn's brother, Hyun.

It seemed that we are gradually getting nearer to see how these tools mediated and influenced the children's interactions. That is, the design features of most of ICT resources (e.g., one

mouse, one keyboard, one Bee-Bot, etc.) encouraged taking turns, rather than joint control over the activity. It is unsurprising that David as well as other children preferred to play on their own. He justified his preference on the ground that 'I'm too busy playing a game' (informal conversation, 27/07/2013 W setting). It seemed he needed some space to conduct play the way he liked. That is not to say that there were no instances of co-operation, including a willingness to help, as will be seen later. However, the most typical way of expressing co-operation was to pass the activity over when a child had finished. Instances of sharing did happen but unsurprisingly on the terms of the playing child as the following example shows.

Fieldwork observation (14/02/2014 S setting) Colin finished his turn playing Super Numtum on cbeebies. Then it was Paul's turn
Colin: Paul after you do it can I play on it?
Paul: you've been on it
Colin: no I didn't
Paul: yes
Colin: I, I love to play that game
Paul: I'll find it
Colin: that's not is it [switched on the Melody song] that's not it
Paul: you mean that game I think I can find it eh it was right it was right that is it
Colin: [had a look] no that's not it
Paul: that's music, music, [pause] this one?
Colin: no not this one
Paul: music
Colin: I don't like music

In this episode, Paul justified his actions (i.e., his right to have a turn) based on his moral reasoning that his friend and he needed to have equal opportunities to play, since his friend already had a turn. He justified his right to play on the basis of fair resource allocation. In terms of pedagogy, this type of sharing (i.e., on turn basis) was also reinforced by the practitioners. In many of observed play episodes, whether with the computer, camera, other ICT and/or traditional resources, the practitioners interfered mainly to organise turn taking. They requested

waiting children not to intervene in the choices of the playing child and instead wait for their 'turn' (e.g., 'it's not your turn').

This finding (i.e., the children preferred to conduct their play on an equal basis) is consistent with previous research (e.g., Sigelman and Waitzman, 1991; Wong and Nunes, 2003) which show that nursery-aged children tend to prefer the principle of equal distribution of resources when they play.

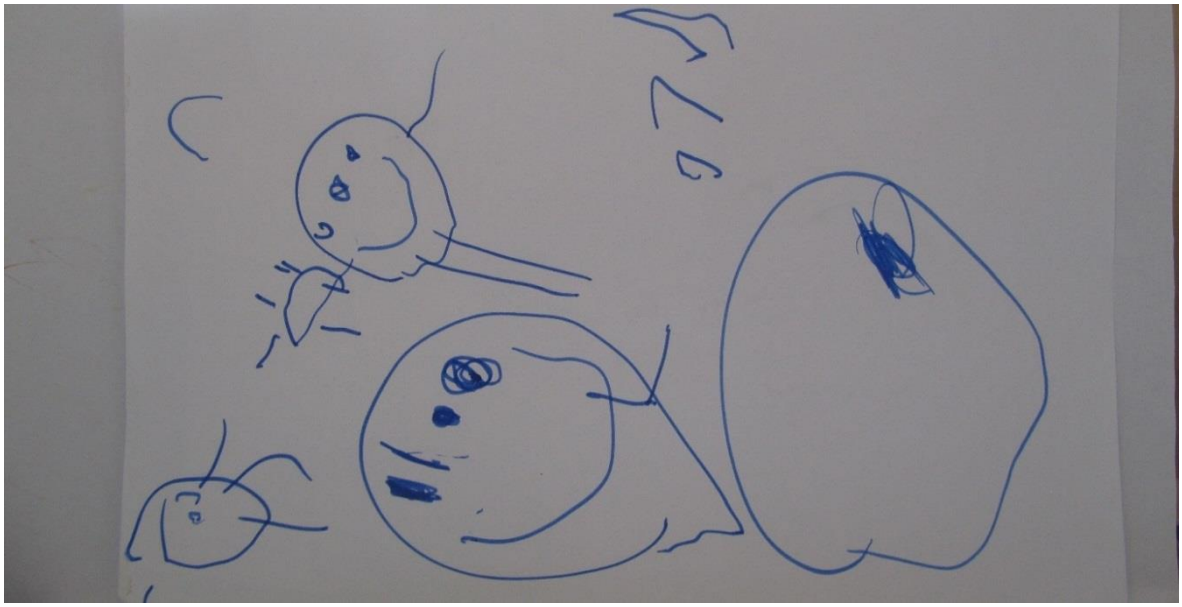
5.2.3. Third Sub-theme: 'Being' with a Friend

'I like playing with all my friends' (Lydia 24/07/2013 W setting)

Hani: if you are now on the computer, whom would you like to be with you?
Alan: friends
Hani: what makes you want to be with your friends not properly alone?
Alan: because I'm sad when I'm alone (Informal discussion, 12/04/2014 B setting)

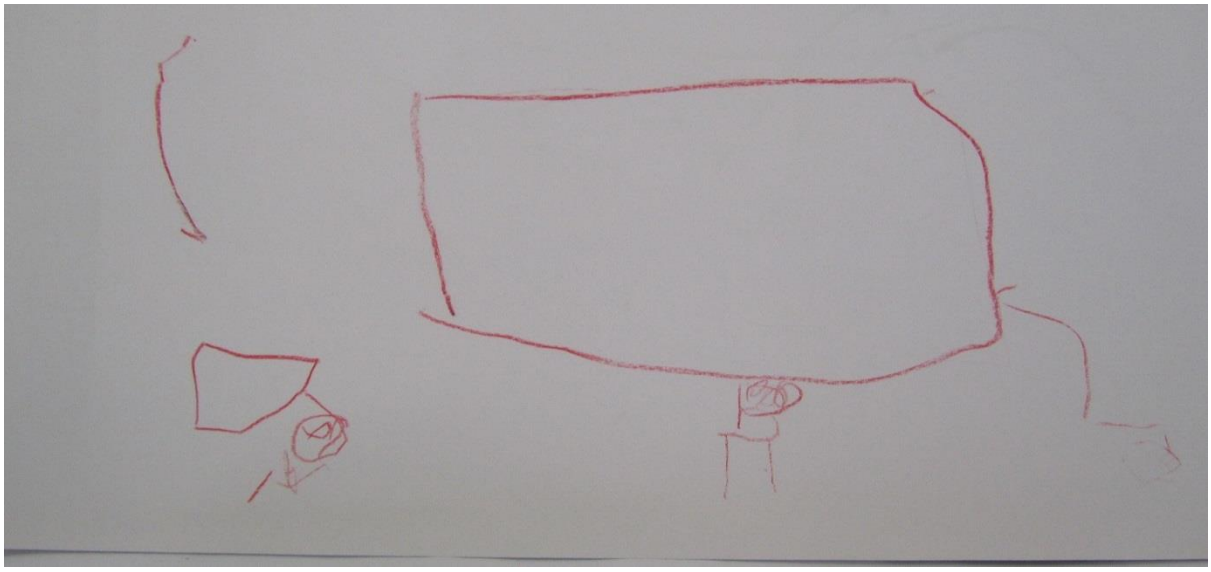
Nearly all the children across the three nursery settings voiced their desire to conduct this type of 'play' (i.e., play with ICT resources) with their friends. Their preferences to be with their friends also featured in their drawings of themselves playing with an ICT item of their own choice. Lydia said that 'I like playing in the nursery and I love playing with all my friends' (24/07/2013 W setting). She then drew this picture of herself playing with the computer with her friends, Lora and Alice (see figures 9) which demonstrated that she was happily playing at the computer, enjoying this experience with her friends. In fact, many children explained that playing and/or being with their friends was one source of their enjoyment in the setting.

Figure 9: Lydia playing with her friends at the computer in W setting



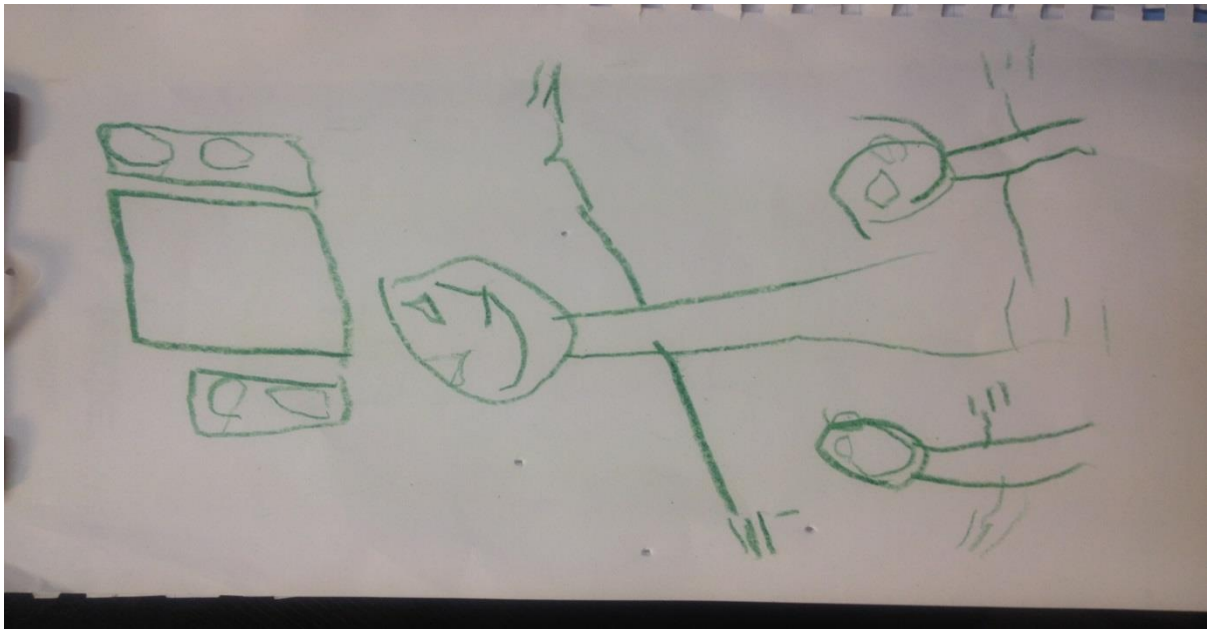
Leo, like the other children mentioned earlier, liked to draw on the IWB with his friend, Mark (see figure 10). His drawing featured him and his friends happily playing at it.

Figure 10: Leo playing with his friends at the IWB



The children in the other settings showed the same preference for their friends. For instance, figure 11 showed Angel playing at the computer happily with his friends.

Figure 11: Angel playing at the computer with his friends in B setting



However, developing this sub-theme of ICT-related play proved very difficult and puzzling. At one end of the spectrum, all the children wanted to *play/be with* a friend(s) in the context of technology-based play, as expressed not only in their drawings, but also in the discussions conducted with them. At the other end, many children said that they would like to be playing a game on their own (e.g., Tree Fu Tom, My Grandpa in my Pocket, I Can Cook, etc.).

Understanding these contradictory perspectives requires a description of the context. 'Context' covers the social, pedagogical, material and educational influences on their play with ICT. In terms of the material context, in all the nurseries the computer/ICT area included a desktop or a laptop computer with a bench for two or three children. As explained earlier, the children drew two distinctions among themselves, based on their role in the ICT-based activity (i.e., the 'watcher' and 'the person who plays'). Furthermore, the material context (i.e., the available ICT resources) and its inbuilt design features (i.e., a computer with one mouse, one keyboard, and one screen that could be controlled by one child) influenced the children's play and their friendship preferences. For instance, once a child was 'playing' on a camera, other interested children needed to wait for a 'go'. In addition, although ICT is material and is made of pieces

of plastic, metal and electricity, it did not stop children from attributing 'life' to it. Inherent in these tools was a possibility for animation. For instance, David explained that 'I will be angry at the computer, because it never works. Ever saying come on computer.. no.. if you do not work I'll become angry (making an angry voice)' (25/07/2013 W setting). Once Gloria was playing on the Bee-Bot, and for some reason, it became unresponsive. She kept reprograming it, but it kept going to wrong directions. Getting surprised, she said 'he doesn't listen' (03/07/2013 W setting). In another fieldwork observation, Yang was observed playing with Bee-Bot. He made mistakes programing it, and as he tried again, he said 'let's see if he'll do it right this time' (02/05/2013 W setting). And at S setting, the children were watching Mig and Mug on YouTube. Suddenly the computer stopped working. Arthur, complaining to the head-teacher, said 'the computer's being silly again!!' (07/11/2013 S setting). This suggests once again that these are tools for playful interaction.

In terms of the pedagogical context, the practitioners in these settings supported the policy of turn-taking by children on an equal basis. Sharing was characterised by Jane, a practitioner, as a voluntary child-initiated pro-social behaviour (i.e., it comes from within the child) (14/07/2013 W setting). Turn taking, on the other hand, was not voluntary, but was imposed by authority figures in the settings. It was intended to prevent conflicts between the children, so that their play could continue smoothly on a fair basis. The practitioners also made use of ICT resources to widen children's experiences. For instance, the theme of the week was the Ginger Bread man. Children made their own ginger bread man, and listened to a story of a ginger bread man read by a practitioner. The activity was extended by watching a story at the computer.

In relation to the social context, the social aspect of play was underdeveloped. Children were left in charge for the duration of their turn. As a result, the children's experiences with ICT

created many opportunities and constrains on negotiation which have educational outcomes such as developing personal skills (i.e., ICT knowledge and abilities), strengthening their dispositions (e.g., a preference to be a leader, friendship dispositions) but also showing creativity in negotiating their wishes.

The context of play with ICT created a tension between the desire by children who wanted to lead play, but on the other hand to be joined at times by friends who were supposed to be in a watching or subordinate position. For instance, Chen stated a preference to be joined by his friends but as 'watchers'.

Hani: while on the computer do you like some children to watch you?
Chen: no
Hani: what makes you think like that, Chen?
Chen: Because I do not want anybody touch... play and shout
Hani: what about having a friend, Chen. If the teacher said 'you have a choice,' and she said 'Right Chen you can sit on the computer just you', would that make you happy?
Chen: I cannot play with Mark and David and Rich
Hani: Right so you like to play on the computer and you like your friends to watch
Chen: And that is Rich and David and Ali .. erm and Dale (informal conversation, 09/08/2013)

Chen, as did other children, did not want to be annoyed or disturbed when playing with an ICT resource, and in his opinion, the source of disturbance was the children gathering around him. Nonetheless, he wanted other people in attendance. Of course, as explained earlier, many children desired a form of technological play that excluded other children even friends.

Hani: would you like anybody to be with you while on the computer?
Yang: nobody
Hani: not even a friend?
Yang: no
Hani: why do you think that?
Yang: I don't want anybody to disturb me (informal conversation, 01/08/2013 W setting)

Hani: while on the computer, do you like to have it all by yourself or to be with a friend?
Angel: I like to be on my own
Hani: Why do you think that?

Angel: Because I like to have some pace and quiet when I'm playing on the computer… when I am on my own I like it and when, when I play with my friends they keep pointing on the computer and …. once my friends take my chair (informal discussion, 13/10/2014 B setting)

I will move on to explore how the children managed their friendship relations. The example presented below, shows an interaction between two friends, and may illuminate social negotiation at a computer activity.

Fieldwork observation (05/05/2013 W setting)

Lydia and Kate were sitting at the computer. Kate chose to play the Water Bears Escape game. Lydia wanted to play the same game. But Kate wanted another turn on a different game 'Mr. Bloom's Nursery: Get Set, Grow!' Lydia was waiting her turn and she wanted to play 'Catch Me If You Can'. While Lydia was playing, some children (Yang and Chen) started laughing enjoying seeing the car on the computer and hearing its crashing sounds.

Kate: You two boys go away? [pause] Naughty boys go away.

Yang: why do you say that?

Kate: what are you laughing at? Naughty boys!!

Yang: do not say that? If you say it I will not play with you, I won't be your friend!!

Kate: No [then she wanted to have a turn and snatched the mouse off Lydia's hand.]

Lydia: [became angry, stood up, looked angrily at Kate] I am not playing with you!! [and wanted to punch Kate. So I asked Lydia to wait in order to prevent them from fighting] I did not have a turn, Hani. I'm sad.

Molly also came to the computer corner, watching Lydia and Kate playing at the computer. She asked that she wanted a turn. She chose to play Wooly and Tig Jigsaw Puzzle

In this episode, I was observing the children's interactions from a distance so that I would not interrupt the progress of their activity. I later intervened to prevent a disagreement becoming more serious. Lydia and Kate were playing on a turn-taking basis. When Lydia's turn to play was cut off by Kate's impatience for another turn, Lydia became 'sad'. Preventing her from playing by her friend, Kate revoked their friendship status. As discussed in the literature, children's friendships revolve around play (Corsaro, 1985). A child would normally say 'I play with my friend(s)'. This phrase implicitly presents the expectation that there is an element of sharing and that in play the child enjoys a happy experience with friends. However, in comparison with sand and water activity, where there may be more scope for sharing and collaboration (e.g., more play tools such as plates, cops, spoons, etc., potential for more

children to join in, and thus potential for collaboration towards making, for example, a birthday cake, see figure 12 below), the situation of sharing in the context of computer play was different.

Figure 12: sandpit activity

Only one child, normally the leading one, would be able to participate actively in play. This aspect was such a continuous source of tension that pushed the teachers to put the rule that 'only two can go on the computer at a time' in S and B settings. This finding (i.e., the children's arguments over turn taking) resonates with previous research that shows that children's conflicts revolve around resource allocation (Chen et al., 2001; Roseth et al., 2008).

Some of my field work observations showed how the children could use the stimulus of technology in their imaginative play during their free-play periods. These material items to support free play included non-functioning cameras, remote controls, broken scanners, real but non-functioning mobile phones, tills, CD players, and toy replicas of digital resources such as

laptops and musical instruments. The children's imaginative play events featured them playing with their friends. Their pretend play themes involved them in playing the role of a shopkeeper serving customers cakes and coffee, working at an office, going to a hospital, being a patient, pretend typing, making pretend calls, etc. For instance a group of girls used keyboards, phones and camera in a hospital reception desk, pretending to have an emergency case that needed an immediate attention from a doctor. In addition, the children incorporated into their play characters from their popular culture and TV shows such as Peter Rabbit, Dr Who and Daleks, Power Rangers, Star Wars, etc. This was underexplored in the study, but one thing it does show is that ICT tools can be perceived differently in different contexts. They can be perceived as stimulus for group interaction as well as a stimulus for individual activities. In certain circumstances, ICT tools can invite co-operative play, albeit this seems to be more the case with replica tools. This may be because replica tools allow the children to use their own imagination to create play scenarios.

Technological play created a context which sometimes invoked negotiation and renegotiation of the children's established friendship status, strengthening it, suspending it temporarily, reinstating it, and/or ignoring it all. Although, the children strove to exercise their agency (i.e., actively controlling the activity the way they wanted, as discussed under the first sub-theme), they did not ignore the demands of friendship. Instead, it encouraged the children to renegotiate friendship. To start with, a fieldwork observation is presented below:

Fieldwork observation: (12/12/2013 S setting)
Colin wanted to watch Hid and Seek Peter Rabbit on cbeebies. He was not in charge of the activity. So Erica chose the game as requested by Colin.
Colin: this one [pointing with his finger at the screen] Hide and seek
Erica: I think not this one!!
Colin: well I want this one!! [addressing Erica]
Erica: I need this inaudible
Colin: this one!! [pointing with his finger at the screen] I am your friend
Erica: that says it says press z [she was now choosing a different game]

Colin: play that one that one?
Arthur: she wants to play something else [pause] because she thinks that's boring
[Erica puts Melody song]
Arthur: who is Melody, who is Melody?
Colin: this's Melody, I want that one. That one?

This above episode represented free technological play managed, negotiated and directed by the children themselves, without any interference from a practitioner. The issue of friendship was raised by Colin's desire for a certain game, 'Hide and Seek Peter Rabbit' on the cbeebies website. Since he was not in a position to realise his wish to watch this program, he needed to find some other way to fulfil his aim. He first resorted to asking Erica directly to put on the programme that he liked. His request was accepted by Erica, but the trouble came when his preferred game ended, and the time to choose a different one came about. His first initially successful technique (i.e., asking Erica) did not work. Therefore, Colin used the 'friendship' concept, 'I am your friend', to influence her choice of game/programme that he wanted to watch. His strategy did not work either, since Erica wanted to choose a different game, one that she liked. His insistence was met by Erica's silence, ignoring his requests. This situation of Erica's silence and Colin's constant insistence led to Arthur providing a justification for her behaviour. His comment was an expression of his awareness of her agency, exercised in her choice of a game that she liked and enjoyed playing. Hence, in terms of Erica and Colin, ICT-related play offered a context that triggered a negotiation of their social relations, driving Colin to make explicit his implicit assumptions about their friendship relations. Erica's ignorance of Colin's requests, and Colin's insistence on realizing his wishes were not uncommon in children's play featuring ICT resources.

The children normally liked to be in the company of their friends, since they liked them and enjoyed their company. The children in this age differentiated between 'my best friend', and being 'just a friend' or probably not being a friend at all. The ICT technologies mediated their

friendship relations. One important aspect of this influence may become clear in the following episode.

Fieldwork observation (16/07/2013 W setting)
Gloria: I'll show you how to do it, to the square my turn isn't it? Stop? Go then here we go let's do it again
Molly: it is my turn now
Gloria: [ignoring Molly's request] 1 2 3 4, four squares and then turn that way, you count Molly 1 2 3 4and I am going to do that [but Molly wanted to take the Bee-Bot and to have a go] I am doing it Molly!! I am doing it!! Where do you want it to go? I'll show you [Molly referred with her hand at a square] Ok [but Molly again tried to take the Bee-Bot, But Gloria prevented her] Molly from here [Gloria took the Bee-Bot and started programing it]
Molly: I'll get Youn, I don't like watching [a] friend
Gloria: [ignored Molly's comments] now where do you want it to go, Mark? Okay, to the playground!
Mark: no there [pointing with his finger at the Bee-Bot's map]
Gloria: ok
Molly:[returned back to the activity] now is it my turn?
Gloria: you count with me 1 2 3

The context of this activity was an afternoon free-play period inside the classroom at W setting. The classroom was set up with a variety of play materials ranging from dolls, Lego, painting, and to Bee-Bot. Gloria chose to go to the table that was set up with the Bee-Bot and started playing. Molly came to the activity, shyly and quietly watching Gloria playing. Becoming interested in 'playing', Molly decided that she wanted a turn right 'now'. But her request was ignored. Her other nonverbal attempts at having a turn (e.g., touching the Bee-Bot) was met by Gloria's vigorous confirmation that she was in charge 'I am doing it Molly!! I am doing it!!' However, these verbal signals by Gloria were not to exclude Molly completely form the activity, but to remind her that her role was not to control the activity. Instead, Gloria offered Molly the opportunity to provide directions for the Bee-Bot, although the instructions would be executed by Gloria herself. Molly's initial compliance with Gloria's terms of participation in the activity was followed by another nonverbal attempt to have 'a go' by 'holding' the item. Dissatisfied with being relegated to just a watcher who may only partially contribute to the activity, she chose to leave the activity commenting that 'I'll get Youn, I don't like watching

[a] friend'. Her comments, while leaving the activity, explicitly indicated her friendship relations with Gloria and the tension between 'doing' rather than 'observing'.

While Molly chose to leave her friend, Gloria, to find another play activity, other children might follow more diplomatic ways of negotiating their wishes when these conflict with a friend's wishes.

Fieldwork observation: (31/07/2013 W setting)
Lora and Alice were playing in the kitchen and then they came to the green table and wanted to listen to a CD.
Lora: We've never listened to this one before [a CD called 'KIKA HITS' in German language]? Shall we listen to it?
Alice: Yes
Lora: [put the CD in the CD player but it did not work] How to turn this one on, Hani?
Hani: [I had a look] you need to switch that one on
Lora: Ok [put that CD in the CD player]
Alice: I want to play the one that Gloria wants [a dancing CD that Gloria was listening to]
Lora: Ok [the music started, then they started to dance, and other children joined in]
Gloria: [came back to the activity] This CD is full of scratches, it needs to be wiped [she did that and put the CD in the CD player. All the children started to dance. After a while Lora wanted to put her CD]
Lora: now I am going to change it Gloria, Okay!
Gloria: no, not yet
Lora: We need to change it to people ok. I am going to stop it now
Gloria: We a music [inaudiable]
Alice: No we want to do .. we need to get people a big idea [Lora stopped the CD and wanted the German one. Gloria did not agree and stopped the CD player]
Lora: Gloria if you do not let me play, I will not invite you to my party (then Lora put it on)
Gloria: [made an angry voice] No [and stopped it]
Lora: If you let me have this, I will be your best friend and I will give you my ball
Gloria: ok, got it
Lora: can we start now? [Then the music started] When the music starts you dance and when it stops you sit down? Shall we start again? [She started the music and stopped it] You [addressing Gloria] are out? [She started the music] well Chris is out now?

Lora wanted to listen to a CD of her own choice, but her friend, Alice, requested keeping the one that Gloria was listening to, since she liked it. Lora agreed and they started dancing happily, and other children joined in. Gloria, who returned to the activity, was happy as long as the CD

that she chose was playing. The tension was driven by Lora's decision to change the CD and put her own choice of CD on instead. Gloria did not agree to this, and prevented it. Realizing Gloria's strong objection to her desire and the need to find a way to realise her wish, Lora resorted to the friendship concept. She offered Gloria a privileged social position (i.e., I'll be your best friend) and gave her access to her valuable play items (i.e., her ball). As a result, she was able to persuade Gloria to let her play the activity and direct it as she wished. Subsequently, Lora successfully managed to realise her wish and to continue the play situation. The end result was a satisfactory experience for all the participant children in this episode. Lora liked to be a leader in her play activities, thus frequently adopting the role of the teacher and sometimes calling herself by the name of her teacher, Jane, in her role play. On the other hand, Gloria was also a leader who liked to lead play activities. Friendship was a middle ground that helped the children to carry on their play smoothly and sustain their relationships.

On other occasions, the children's friendship relations were suspended on a temporary basis. This suspension of friendship relations came as a result of mishandling the negotiation of their wishes. Chen and Yang were friends. They were both Chinese, and had been in the same nursery since they were roughly six-month-old. They liked to play together. In a pretend play episode, there was a 'Zoo' shop, set up by a practitioner. Chen was playing with a till in the office area. He wanted to be the cashier. He asked Claudia, a practitioner, to help him get some pretend money so that he could role-play the cashier. He just started pressing buttons. Yang came and asked: 'can I play with this one?' 'But I am playing now!!!' Chen replied. 'We are not friends', Yang frowned and then left (05/07/2013 W setting). In this pretend play episode, both of the children defined their experiences as 'play'. 'Play' was Yang's intention of coming to the shop, and 'playing' was what Chen was doing (i.e., the actual activity of pretending to be a cushier, sealing tickets for customers, etc.). Feeling upset since he was not able to achieve

his intention of coming to the activity (i.e. play), Yang left, temporarily suspending his friendship with Chen. The end result was an experience that saddened both children.

Overall, it appears that children preferred to be in the presence of a friend while playing but they were leading the activity. Some children at times wanted to play completely on their own, and in some cases children were able to exercise a low level co-operation or in the context of play with replica ICT much more highly co-operative play. Their agency was expressed in many forms, one such form was striving to be 'decision makers' (Moyles, 2012: 41). The children strove to make decisions on choosing their preferred games, and its direction. Other forms could also be inferred from play episodes and the children's comments, including: their intentions to have a turn, the expression of their play preferences, their active engagement in the play rather than watching their 'friends' or others playing. Thus, they were 'agents' of their own play in the context of their technological play (ibid, 41).

The children's preferences to be leading their ICT-based play on their own probably came from a sense of equality that governed their play in the nursery. Jason suggested that children liked to be with their friends 'because they don't like to be lonely.' (29/05/2014 B setting). Hence, this activity may not be 'isolating', since the presence of a friend(s) was still perceived as necessary to the child in charge in order to provide the emotional support. When it was a child's turn, they liked to do/play it themselves without 'disturbance' or 'annoyance' from other observing/waiting children. It seemed as if the children made a distinction between 'being with a friend/s' and 'playing the activity' on their own. Hence, while the great majority of the children confirmed that they *want to be with their friends* on the computer, they pronounced their wish for an active self-led play in this context. Based on this finding, I would describe this preference as 'independent play' but not 'isolating' play. With this in mind, and taking the previous factors (e.g. turn-taking, individual play supported by the equipment, children's

preferences to be in charge) into consideration, the context of play with technology created a scope for negotiating and renegotiating their friendship relations. Thus, what initially appeared to be a preference to be with a friend, while it was still notably present and sometimes did develop into a happy experience, did not necessarily amount to collaborative play.

The finding that the children felt that the presence of their friends provided them with emotional support is in line with previous studies that show that young children like to play, since it allows them to interact with their friends (e.g., Dunphy and Farrell, 2011; Janisse et al., 2014).

5.2.4. Fourth Sub-theme: Fun

'It [an activity] is fun, when I play with my favourite games [that] I like' (Ali 12/08/2013 W setting).

All the children expressed their feelings of excitement, happiness, amusement and delight by describing their play with ICT resources as 'fun'. The enjoyment that they gained from their play experiences with these resources was not straightforward, however. Enjoying their play was a complex multi-layered phenomenon that depended on a variety of elements. The indicators of the children's enjoyment will be described first, as the children voiced them. Following this, a detailed discussion of 'happy' experiences depending on a set of variables will follow.

The children enjoyed a multiplicity of activities with ICT resources, including watching, playing, printing, pressing, clicking, choosing, colouring, drawing, singing and pretend/real typing, in which they controlled the pace and direction of the activity. These activities were 'fun'. Enjoying their experiences with these tools (i.e., being/having fun) was the main motivation to play. All the children, regardless of their gender, socio-economic, and ethnic background, wanted to carry out ICT-related play because 'it's really fun' (Lora16/07/2013 W

setting). Lydia explained that ‘I love going on the computer because [she stood up and excitingly said] it’s fun’ (01/08/2013 W setting).

All their drawings of themselves playing on these resources featured them with smiley faces. Their drawings aptly pointed out their emotions and other aspects of their perceptions of these experiences. Molly drew herself playing on the IWB. She chose to draw a flower with a smiley face because she ‘like[s] flowers’, and she normally drew flowers on the IWB (see figure 13). Her drawing features her happy experience of drawing on the IWB. She also explained that she preferred to be with her friends, when prompted further by the researcher.

Figure 13: Molly's drawing of a smiley flower on the IWB

Yejun chose to draw the IWB because he liked to draw on it (see figure 14). For him, this activity featured a social enjoyable activity with his Korean friends, Youn and Hyun, as well as his English friends Siam and Mark. When talking about his experiences, he used one-word descriptions to explain his intentions such as ‘happy’, ‘play’, ‘like’. But by drawing, he expressed a more complex picture of his experiences by showing his preference to draw on the IWB and his happy experiences with his friends.

Figure 14: Yejun playing at the IWB with his friends

The children's drawings validated other data resources (participant observation, photography, and informal discussions with them). All the children described their experiences as 'fun', and their drawings confirmed this.

In talking about their experiences, most of the children were animated. They might laugh, smile, make happy comments about the content, voice their preferences and make playful movements.

Fieldwork observation: (10/02/2014 S setting) Colin, Robin and Peter were watching Tree Fu Tum
Robin: I want this one, Tree Fu Tum
Colin: wait [pause] Tree Fu Tum
Robin: come on [shouting enthusiastically] Tree Fu Tum, Tree Fu Tum, Tree Fu Tum. You can do it, Tree Fu Tum. We've got Tree Fu Tum
Colin: do you choose another one?
Robin: [pause] Tree Fu Tum, Tree Fu Tum [stood up imitating Tree Fu Tum's moves] we're good, are not we Colin? Are not we Colin? [no answer from Colin] you are the boy and I'm the boy too
Computer: clap your hands
Robin: clap
Computer: Touch your knees
Robin: knees feet. He's got magic

Colin: I , I, let's put on Superman
Robin: superman, look Tree Fu Tum [stood up and imitated Tree Fu Tum's movements]
Colin: look, look Magic
Robin: Magic [physically active] He, Tree Fu Tum's got magic
Colin: pchf pgf [moving his hands making a sound of shooting with his mouth and so did Robin]
Ross: [watching behind] that boy can [inaudible] Tree Fu Tom
Robin: no I've got Tree Fu Tum I watched it on TV
Colin: yah
Robin: me and Colin
Colin: it's for watching
Robin: jut watching for me
Colin: I've got Tree Fu Tum at my house
Robin: and I've got, I've got this one at home too
Colin: I've got a big one
Robin: and I've got the big one. Tree [imitating movements of the character] Fu Tum [Colin did the same] I've got top on
Colin: and I

Colin and Robin excitedly imitated the physical moves of the character, Tree Fu Tum, happily sang the song, talked about it, identifying themselves with the characters (e.g., Robin 'I'm the boy'), and talking about the toys that featured these characters that they had at home.

In the following episode, Deborah and Peter got involved in playing a game on cbeebies. Deborah who was leading the activity excitedly answered the questions posed by the program, feeling happy to find out that her answers were right.

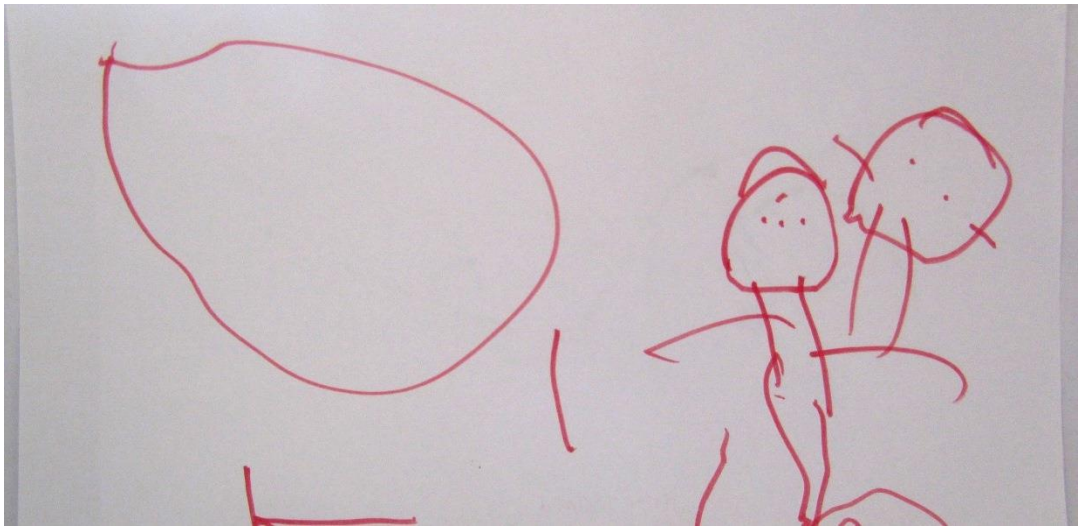
Fieldwork observation: (28/02/2014 S setting)
Peter: what's that?
Deborah: it's just loading
Computer: which one?
Deborah: this one, red, red, red
Computer: is it this one, the red?
Deborah: yes the red, red
Computer: or this one, the blue?
Debora: red, red, red
Computer: which basket matches mat Yangs? Start the quiz clock?
Deborah: red, I guessed red

Peter: blue, blue, blue
Debora: look, [pointing with her finger at the screen] banana, tomato
Computer: and you what did you say?
Debora: red, I said red hey I guessed red and it is red

What elements contributed to having fun in the context of their ICT-based activities? First, a number of the children mentioned that they would 'play' on these resources because they 'want to'. This was their decision, and was genuinely desired by them. They wished to be actively engaged in the experience, and thus enjoyed it. This touched upon their expression of their agency, as discussed previously under the first sub-theme. More specifically, they wanted to enjoy the activity in their own ways. Play always involved hands-on experiences for these children. According to Morrison (2007: 16) enjoyment is one element of the five elements of intrinsic motivation. The other four are 'interest, control, probability of success, and feelings of competence' (ibid 16). The children liked their activities with ICT, enjoyed them, and felt competent in handling their ICT activities. The children themselves self-initiated their activities with ICT, as discussed earlier, and experienced feelings of 'fun' and satisfaction of their interests in these activities.

A second factor came from the social aspect of the activity. I have seen different patterns of children's social interaction in the context of ICT-featuring activities. One pattern featured children preferring to play on their own with ICT. A second one involved children present in the activity as watchers (i.e., watching the child who was playing). Another one featured a low level collaboration between children. Children did engage in deeper forms of collaboration but rarely when they were playing with ICT. For a number of the children, their friendship relations contributed to making the experience happy. Simon drew himself playing on a computer with his friend, David (see figure 15). This drawing featured them both as happy enjoying a pleasant experience at the computer.

Figure 15: Simon playing at the computer with David



However, the same friendship factor could transform the experience into an unhappy one, as was discussed more fully under the friendship sub-theme. For some children, the presence of friends in their digital play was both annoying and necessary as an element in influencing the level of enjoyment of the play experience. More specifically, it was annoying when friends crossed sharing boundaries (i.e., turn taking). The following quote shows clearly how friendship could be a positive or negative element.

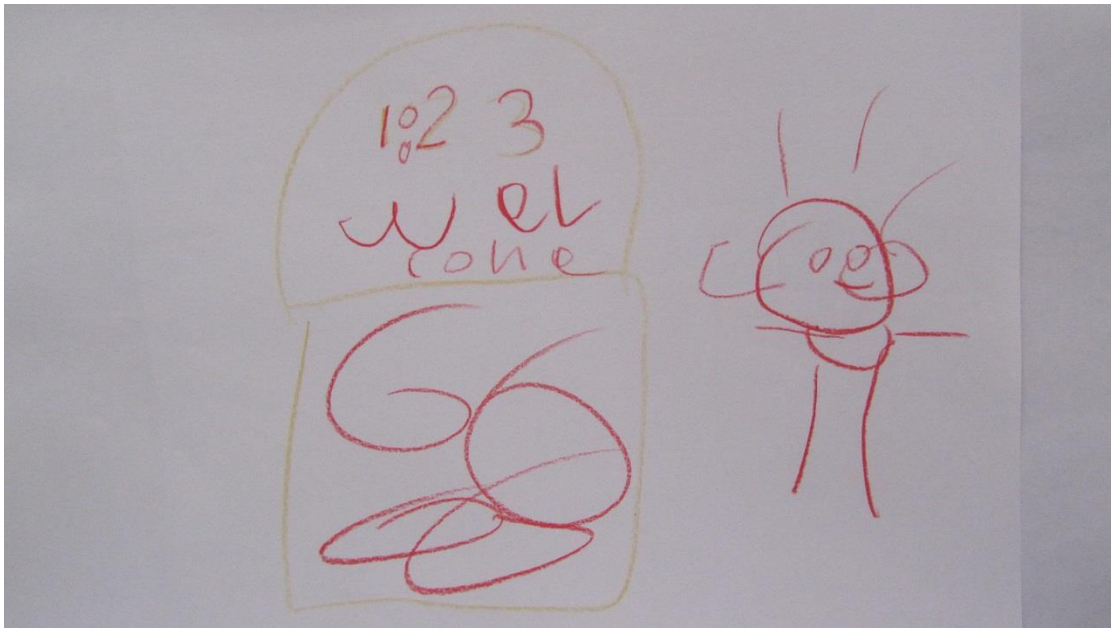
Jason: sometimes I want to play on my own and sometimes I want to play with my friends on the computer
Hani: why do you think you sometimes want to play on your own?
Jason: because I like peace
Hani: and the other times you want to play with some children why?
Jason: because they are my friends (informal conversation, 08/04/2014 B setting)

As discussed under the friendship play sub-theme, the children regarded the ICT activity as a space for conducting their own play on their own when it was their own 'go'. Disturbing this status of their play by others was regarded as annoying. Hence, another important aspect pertinent to the social context of the activity related to the children who were observing the 'playing' child and how they reacted while watching. A number of the children described the interference of the watching/observing children as 'disturbing', as discussed in the friendship sub-theme. This distraction took different forms. Lee became sad when people shout (informal

discussion, 13/01/2014 B setting). Elena became annoyed when ‘they fight over it [the computer] because they want to go on it’ (informal discussion, 13/01/2014 B setting). Chen did not like other children who kept saying ‘when it’s my turn? When it’s my turn?’ (informal discussion, 24/07/2013 W setting). And Alice felt annoyed when children kept asking for a turn while she was playing (informal discussion, 27/07/2013 W setting). Jason also felt the same. As a solution to this ‘disturbing’ situation Jason and other children suggested having turns on an equal basis by ‘letting each other have a turn’ commenting that ‘I sort of play with my friends nicely’ (informal discussion, 02/06/2014 B setting).

Nearly all of the children mentioned how such situations (e.g., children crowded around and asking for turns or shouting) ‘spoiled’ their play and made it ‘annoying’. Angel, as did other children quoted above, sometimes preferred to conduct his play on the computer on his own ‘because I want some peace’ (informal discussion, 01/12/2013 B setting). After Yang finished his drawing of himself playing on the computer (see figure 16), he told me that ‘when they [children] talk they disturb me’ (informal discussion, 29/07/2013 W setting).

Figure 16: Yang playing at the computer on his own



A third element was the content of the programme that was being watched/played and its appropriateness. Often the children's gendered identities influenced their choices of the activity's content, and hence, their feelings of enjoyment. For instance, at S setting, a group of children including Erica, Bella, Ross and Peter, were watching a programme on cbeebies. The activity went smoothly until Erica decided to watch 'princesses'. She chose to watch Cinderella. Ross felt bored, quitted the activity, and headed to play something else. He explained to me that 'it's [Cinderella] only for girls' (informal discussion, 11/03/2014 S setting).

A fourth element was the sheer range and number of games that the children could play. Erica expressed her enjoyable experience of playing on the computer 'because it's got lots of games' (14/12/2013 S setting). Karen (15/08/2013 W nursery) expressed her amusement of playing on the computer commenting that 'it never stop[s] games'. Both of these setting, S and W settings, had access to the Internet, and mostly used this to access the cbeebies website. But in relation to B setting, the children only had access to a limited set of CD Rooms and DVD games. Neil preferred to play on the computer at home 'because it is much more funner [sic]' since he could play games on cbeebies at home (02/06/2014 B setting). In addition, in comparison to playing with computer, the children in W setting did not seem to show the same enthusiasm to play with Bee-Bot, which may probably be attributed to the range of games available in the computer activity. Ali commented that 'I play on [sic] Bee-Bot sometimes' because 'I like it', but other times 'I think it's boring' (informal discussion, 29/05/2013 W setting).

A fifth element influencing the level of enjoyment came from the fact that across these three settings the desktop/laptop computers were used sometimes by teachers to do some 'work'. As a result, the practitioners sometimes asked the children to give up their activity on the computer and let them do their work. Steve, at B setting, said that he preferred not having a teacher

around when playing at the computer, 'because they say 'I need the computer for five minutes' to [do] their work but they [take] a very long time' (01/12/2013 informal conversation). Mark, meanwhile, preferred no teacher interference 'because she will tell me off the computer' (informal discussion, 05/08/2013 W setting). A number of the children thought involving teachers in their play with ICT was not something desirable.

Dale: I like computers and play on the IWB
Hani: what do you do on the IWB?
Dale: Draw writing and watch
Hani: what about grownups, do you want a teacher to be around?
Dale: No I do like a lady but I just like you
Hani: thank you, but why do you think that?
Dale: because they're boring (informal conversation, 05/08/2013 W Setting)

The only situations in which some children requested teacher presence/interference involved asking for help when something went wrong (i.e., technical rather than pedagogical help). Some of the children talked about the issue of boredom brought about by the practitioner joining in, and Tina, who preferred home to nursery, explained:

Hani: does anything make you bored in the nursery?
Tina: yah
Hani: what is it?
Tina: all the teachers in there
Hani: ok look at this photo, let us think about it. Why do you think that?
Tina: because I want [to] do whatever I want whenever I want to (informal conversation, 14/08/2013 W setting)

As Tina pointed out, the children desired freedom in the setting and control over their play, which probably may well have motivated the children to choose play without teacher interference.

This finding that the children liked to play with ICT because of their perceptions of it as fun is congruent with previous research (e.g., King, 1979; Robson, 1993; Rothlein and Brett. 1987). These studies show that young children favoured play because of its sheer enjoyment.

5.2.5. Fifth Sub-theme: Gender

Although all the children perceived ICT resources to be for both boy and girls, careful scrutinising of the data set shows that there were some differences among male and female children in terms of how they conceptualised their ICT experiences. These gender differences were significant in their choices of play themes and programme content. These gendered choices sometimes influenced the social dynamics of their play. More particularly, their verbal comments while doing such activities as watching and playing a game seemed to confirm their gendered identities. For instance, a number of the girls wanted to play 'girly' things, and did not like 'boy' or 'boyish' things.

As previously stated, B setting did not allow any video-recoding, so only comments from the discussions with the children in that setting were used here. Through exploring the data it appeared that in S setting the issue of gender was more prominent in the children's play than in the other two settings. The influence of the context was important. From my own observations and discussions with the children, some interesting matters were raised in this regard. In S setting, the children had a daily activity called 'computer time', which the children in W setting did not. In this activity, the children sat in a big circle on chairs watching something on YouTube (the computer was attached to a projector). The content of this activity was chosen by children in turns decided by the practitioners. As a result, the children's preferences surfaced more publicly, and, in these sessions, choices would become a source of rivalry between girls and boys. Perhaps, because all the children in S setting had to watch the same thing in a session, the child's choice of a programme appealed to their gendered identity as a group (i.e., boys or girls). This finding that there were gender differences is consistent with previous studies (e.g., Waite et al., 2007; Zevenbergen and Logan, 2008). Waite et al.'s study

shows that when children had a choice, boys and girls tended to make different uses of available software.

The gender dimension was less obvious among the children at W setting. They frequently accessed cbeebies, which was designed to be less gender specific. However, the gender preferences appeared when they brought their preferred DVDs to the nursery. For example, 'Thomas the Tank Engine' and 'Fireman Sam' were only chosen by boys. With regard to the children at B setting, they had no access to the internet, but only to a set of games that were installed on the computer and were mainly educational and gender neutral. From my own perspective, this was why the children in B setting expressed their gendered identities in their off-screen choices of games and stories (e.g., Cinderella, Angry Birds Star Wars, Hero Factory, etc.) more than they did in the context of their on-screen play.

Nearly all of the observed play episodes at W setting included the children accessing cbeebies. Children of both genders seemed to prefer to play/watch almost the same programmes (e.g. Peter Rabbit, Nina, Big and Small, Octunats, etc.) with one exception, namely that Tree Fu Tum was preferred by boys. In addition, a young boy called Tylor did not like cbeebies games and programmes because 'it's babyish'. He preferred to play 'angry birds star wars' 'because only grown-ups can play it' (informal conversation, 22/07/2013). For some girls this game (i.e., angry birds) and other games such as the dangerous mouse, and Aladdin were regarded as 'scary'.

At S setting, I came across the issue of gender influence through my listening to children's natural talk in their free-play activities. An illuminating fieldwork observation is introduced below.

Fieldwork observation (24/02/2014 S setting): Erica, Tiffany, and Bella were watching princesses. Louie came and wanted to watch:

Erica: No you [addressing Louie] have to go!!
Tiffany: this is for princesses!!
Louie: you're girls not the princesses
Bella: no only, only girls can watch
Erica: because, because we are the princesses are we?
Tiffany: [addressing Louie and turning her face toward him] and and this is girly and this is princess and you can't play with princesses
Louie: you are girls not princesses!!!
Tiffany: yes we are!!
Louie: no you're girls not princesses [pause and watching continued]
Erica: he says princess inaudible [pause] done enough no man [pause] oh oh oh put that behind there
Tiffany: [inaudible] babbles let's watch this
Erica: no don't press it
Bella: you need to put you need to put
Erica: we are girls aren't we?
Tiffany: yah and no boys can watch they are over there and want this
Bella: yah [Roger came to have a look]
Erica: no no not a boy [pushing him with her hand]
Bella: you're you are not a girl [Then Roger left]
Tiffany: we are princesses aren't we?
Erica: I'm her
Bella: I'm her
Tiffany: and I'm her too [pointing with her finger at the screen]
Erica: and I'm her I'm her
Tiffany: we love this don't we?
Bella: this is only for girls
Erica: there're lots of girls
Erica: [a girl from the programme shouting for help] oh, what's happened to him[sic] Tiffany?
Tiffany: oh no where's the princess's going to go?
Erica: there
Bella: she want[sic] her mummy back
Tiffany: she want[sic] her mummy

As the above episode shows, the girls conceptualised what they were doing as 'girly'. They were 'girls', and girls were 'princesses'. Accordingly, the activity was seen as 'just for girls', trying to block the boys' access to their activity. These girls were watching Disney princesses on YouTube. The content of the material accentuated gender stereotypes, highlighting the feminine aspects of the characters (i.e., long flowing hair, 'nice' clothes, and so on). The girls

identified themselves with the ‘princesses’ (e.g., ‘I’m her’). It was something they desired to watch in a number of the observed episodes. They made frequent requests to watch it.

What was also striking was that when boys played at the computer in this setting, they made distinctions similar to the girls about the appropriateness of the content to their gender. The boys showed a clear concern for femininity in their play, as the following fieldwork observation shows.

Fieldwork observation (14/02/2014 S setting) Paul and Colin were on the computer playing. Paul put a game called get ‘Jitters’
Colin: that is girly
Paul: [making happy physical movements] I’m him I’m him
Colin: no you’re girly
Paul: no I’m not [feeling a bit upset]
Colin: you’re girly now
Paul: I want this cow
Colin: yes like this [he started to dance] I’m the come this
Paul: I’m him I’m him
Colin: I’m the cow, cow, cow!!
Paul: what do you want?
Colin: that
Paul: that
Colin: yah
Paul: no I’m not having this

The influence of the children’s gender on their play with ICT was not limited to their own choice of content. It also seemed to influence the social composition of the participating group. Leah preferred to play with girls at the computer. She liked ‘girls the best because boys like to play boy things’ (17/03/2014 B setting). This tendency to play with children of the same gender was linked to their shared preferences, as Leah explained. In the following fieldwork episode, the influence of the children’s gender on the social dynamics of ICT-based play may be further illuminated.

Fieldwork observation (16/12/2013 S setting): It was Bella's turn to play with the computer and she could not choose her preferred game on her own.
Erica: I can help you [wanted to do it for Bella]
Bella: noooo
Jude [head-teacher]: right, move it with your finger [Jude held Bella's finger and showed her how to do it] then when you see that take it off and click [Bella started to make her cakes] then you have to click on that side. Can you see it again?
Bella: no not sure
Jude: let me see
Brad: I can't see I can't see
Bella: I want that one [Jude helped her put on Topsy and Tim game]
Deborah: play [pause] Click, click it
Jude: go to that side
Erica: I want to watch Topsy and Tim [Jude left the activity]
Deborah: ok ok ok I will help you
Bella: I want Topsy and Tim [Bill sat on Jude's chair after she left]
Bella: No, no you're [addressing Bill] not playing. You're not playing you're just sitting here you are just sitting only the girls [Erica and Deborah] can play
Debora: I am a girl so you two [pointing with her finger at Bill and Ken] go away you can't join in because [it is] only for girls [moved her face nearer to Bill's]
Ken: no
Bill: not just girls
Ken: it is for all of people
Deborah: no you can't
Ken: no no it is for all of people
Deborah: no it is for the girls
Bella: noooo
Ken: no the people [pause] it is for the people

In the above play episode, the girls intended to exclude the boys from their play. They were united as 'girls' and wanted only girls. The situation was met with annoyance on the part of the boys aiming for play on a 'fair' basis. After the episode finished, I decided to inquire about what made the girls behave in that way (i.e., claiming the activity as belonging to them only to the exclusion of the boys). Deborah commented that 'because boys don't play nicely'. She further added that 'girls always play properly' and boys were more physical. That is, this sort of behaviours 'spoiled' and disturbed the children's ICT play as discussed under the third sub-theme. It also seemed that the girls (Erica, Tiffany and Bella) were more prone to choose a content that favoured their gender preferences, and most of the observed episodes (over 10) involved them in strongly identifying themselves with feminine characters.

The influence of gender also seemed to extend to their conceptions of the characters of a gender-neutral program. For instance, while watching Tom and Jerry DVD that Chen brought to the nursery, an argument about the gender of the characters took place between Chen and Gloria at W setting. Gloria thought that Jerry was a girl and every time she used the feminine pronounces (e.g., her, she), Chen immediately turned around, looked at her a bit annoyed and said 'he not she'. What was interesting about this episode was the attempt to force gender into a story in which an ungendered narrative was possible.

This finding (i.e., gender differences in the children's ICT-related preferences) is congruent with previous research (e.g., Aubrey and Dahl, 2008; Francis, 2010; Freeman, 2007; Oncu and Unluer, 2012). This research showed that young children develop awareness of gender differences and expectations early in their lives, and prefer gender appropriate toys and games.

5.3. Summary

The striking finding was that in all case settings the children perceived their ICT-based activities as play. They viewed this play as consisting of five elements (i.e., agency, fair, friendship, fun and gender). The influence of the context on their perceptions of play with ICT was also explored in relation to their friendship relations, moral reasoning, feelings of enjoyment, and gender. They liked to exert influence on their play in accordance with their wishes, and stressed playing on equal basis. Whereas the children liked to be with their friends when playing with ICT resources, they liked to have a space to exert their agency preferences. They viewed this play as fun, and their gendered identities appeared to influence their choice of content.

5.4. Context and Cross Settings Comparisons

As seen earlier in discussing methodology, there is a danger of downplaying the importance of context in presenting these findings by theme rather than by context. However, context is important and within these findings there are aspects of the context that help shape children's activity (e.g., their age, gender, number of children), the resources available, teachers (their pedagogies and attitudes toward ICT integration), the amount of structure imposed on access to technology, and at a macro-level the policy documents and how these are translated into schemes of work. For example there were instances where the gender of the children was important. For instance, in S setting (page 234), gender identity seemed to become more pronounced when all the children were grouped together in 'watching time' and one child was asked to choose a DVD or story on YouTube. This generated rivalry between boys and girls. This rivalry seemed routine perhaps because there was little intervention, for example I did not see practitioners prompting the child choosing the resource to think about what the whole class might like to watch. Rivalry between girls and boys at times was noticed in other instances in setting S, as for example when girls on two instances blocked boys from joining them on the basis that they were boys (see 234). However unlike the whole-class setting, rivalry during free play could be much reduced as there were alternative resources which children could use (in fact setting S was the best resourced nursery). The exact reason why gender identity was more pronounced in setting S was not clear but it was commented upon by practitioners who referred to parental influence.

In general the availability of resources was noted as an important influence on children's play. As was the case with other play objects, limited availability meant that the ICT area could be turned into a space for conflict and one in which children experienced tension accessing play and achieving their play agendas.

There was a wider context in which play in all of the nurseries took place - the EYFS curriculum. The staff were aware of the reference to ICT in the EYFS and this had led schools to provide space for using technology. However, lacking clear guidance on the pedagogy associated with ICT children were mostly left alone to use technology in their free-time activity (see page 157). However, in the examples given earlier in the chapter teachers did structure the activities by limiting the time and helped manage conflict and did sometimes troubleshoot problems. This teacher role was carried out in broadly similar ways across the three settings and teachers had a broadly similar understanding of the curriculum. Of course I did observe some more structured sessions involving the use of ICT. These sessions were theme-focused though children tended to perceive them as 'not play'.

5.5. Not-play Theme

The children elaborated on their ideas about what constituted as not play. Their criteria for judging activities as not play were gleaned from both their natural talk in activities with ICT and their explanations that they provided in my discussions with them. These explanations provided evidence on their awareness of the contextual influences on their experiences. The children applied these criteria consistently across the three settings.

5.5.1. First Sub-theme: No-influence

Aiden: 'we've got to play on it [the computer]' (informal conversation, W setting, 22/04/2013).

Paul: you [addressing Colin] need to wait till it's your turn
Given: you [addressing Colin] have to wait because it's my turn then Emma's (11/12/2013 S setting)

ICT-based activities, as discussed earlier, had to have certain features if the children were to describe them as *play*. When the children were not able to self-initiate and self-lead their play, they did not tend to view the activity as play. This finding is in agreement with previous research, which shows that nursery children seemed to be more likely to perceive an activity

as ‘work’ when it was mainly compulsory, teacher-led and seated-based (Ceglowski 1997; Factor, 2009; Keating et al., 2001; King, 1979; Robson, 1993; Wiltz and Klein, 2001; Wing, 1995). In my study, the children sought to transform their ICT-based experiences into ‘agentic experiences’ through positioning themselves as doing activities of their own choice (Kumpulainen et al., 2014: 211-213). Rather than being mere passive players in the context of the technological artefacts, as Jennings contends (1995: 140), the children rejected such positioning and referred to it as ‘boring’.

5.5.2. Second Sub-theme: Boring

In my study, the elements of fun and positive attitudes (i.e., favouring ICT activities, and evaluating them as enjoyable) were essential in the children’s descriptions of play. Once the child started playing, they felt happy. And when disturbed, they felt angry and strived to restore their play and feelings of fun. In fact, in most of the observed disputes about object distribution, the playing children not only strived to protect, defend, and keep their play going, but also to enjoy, and continue enjoying their play the way they liked. In contrast the absence of fun and consequent positive attitudes made an activity boring and not play. In my study, the children refrained from engaging in activities they perceived as boring. Once an activity was evaluated as boring, they would quit it, not look to repeat it again, and search for a more interesting one. The children did sometimes feel bored in the context of ICT-based activities, but almost only when they were waiting and/or did not have a chance to enjoy self-initiation and self-governance of these activities.

My study found that play needed to be enjoyable and fun, and not play was boring. Play could not be boring and not play was never enjoyable and fun. Of course other elements are important (see table 7 page 271). My findings do not fully tally with previous research on play (e.g., King, 1979; Robson, 1993) in which play and work were seen as on a continuum, and work could be

sometimes enjoyable and fun. The difference of emphasis perhaps comes about because of the context of the activity. I was looking at free-play time while other researchers have looked more broadly at the classroom, including teacher-led activities.

5.5.3. Third Sub-theme: Unfair

Feeling that the activity was boring, the children raised the issue of sharing on an equal basis. The children preferred to have equal turns to *play* ICT-based activities. Many children requested a more active role on the part of the practitioner in enforcing the equal play.

Steve: erm nobody knew, the teachers don't notice me and when they notice me they just rash over (informal conversation, 04/12/2013 B setting)

This brief yet insightful quote of Steve's words indicates the distant role that practitioners may have played in the children's free play with ICT resources. Leo, as well as other children, was observed to leave the activity and then come back later on. He justified his actions on the ground that he did not have chance to play. Not having an opportunity to play, the children felt the activity was 'boring' or felt 'sad', and raised the issue of sharing when trying to have an opportunity to play (see the second sub-theme of play).

This finding that the children preferred to play on an equal basis is in agreement with previous research (e.g., McGillicuddy-De Lisi et al., 1994; Wong, 2010). This research shows the prevailing preference of nursery-aged children for fair play. Wong (2010: 275) found that young children frequently used justice-based moral rules to maintain equality in sharing and to preserve their personal rights in the ownership of play. In my study, the children raised the equality concept in order to express their right to play.

5.6. Summary

Having no influence on the technology-based activity, the children felt bored, and tried to own the play activity. When these attempts at controlling the play failed, they often felt that the activity was unfair. They expressed this by invoking nursery rituals such as sharing, complaining, making verbal and non-verb actions, or leaving the activity.

5.7. Summary of the Chapter

By way of concluding this chapter, ICT-based activities were seen as play experiences for these young children. This key finding was common across all three case settings. As seen in the chapter, there were contextual issues which influenced play too. These included factors such as number of the children, resources available, teachers' interventions, and gendered identities of children. However, the overwhelming finding was that children made sense of ICT-related activities through play. The two themes (i.e., play and not-play) showed the children's tendency to characterise their ICT-related activities as play or not depending on certain qualities. The findings further show that ICT-based play either developed into a pleasant and happy experience for all of the children playing, or a dividing experience in which some children felt tension and left the activity feeling bored. In this regard, the children's access, dispositions, friendship and moral reasoning mediated their play. The two themes and their related sub-themes will be discussed in light of the relevant literature in the next chapter.

6. Chapter Six: Discussion

> The technology does not have a life of its own, nor does it stand on its own. It is always used by people in a social context. (Sheingold, 1987: 207)

6.1. Introduction

Chapter 2 reported research studies that focused on the purposes of play for children.In the literature there is a growing recognition of the importance of cultural historical theories attributed to Vygotsky and post-Vygotskian followers. This is not always reflected in policy documents which to some extent draw on Piaget's theories of steps, stages and norms. Definitions of free play remain problematic as do the consequences of free play for children. ICT seems to provide creative opportunities for children to engage in complex play but this does not always happen. This discussion in this chapter considers the findings of this study within this wider context. As discussed in chapter 2, there is no doubt that 'ICT and digital media have had a major impact on the ways in which young children today learn, play, work, and socialise' (Levy, 2011: 151). Yet, the nature of their influence on play (i.e., digital play) is still to be fully understood. Furthermore, regardless of the pervasiveness of technology, little is known of the nature of its influence on young children's culture and activities from their own point of view. In this study, nursery-aged children's perceptions of their ICT experiences in three early childhood settings were explored. As discussed in chapter 2, the term 'perception' refers to the subjective experiences acquired through children's first-hand interactions with the world (i.e., actions, interpretations, thoughts, perspectives) (Barblett and Maloney, 2010: 13). Hence, their perceptions entail their 'experiences, intentions and expressions of meanings' (Emilson and Folkesson, 2006: 220).

Brooker and Edwards (2010: 7) contend that the 'changing social, cultural and technological situation suggests that thinking about play and pedagogy in early childhood settings needs to

encompass an understanding of the context in which play is enacted'. An essential part of this understanding relates to how these young children regard these experiences as 'play' in the first place. When preparing the literature review, it was noted that there was a growing body of research that is interested in young children's perspectives on various issues in early-years education (e.g., Barnett, 2013; Davidson, et al., 1983; Diamond and Cooper, 2000; Dockett et al., 2012; Joerdens, 2014; Johansson et al., 2014; Klaar and Ohman, 2014; Klein, 1988; Kumpulainen et al. 2014; Laupa, 1994; Mashford-Scott et al., 2012; Readdick and Chapman, 2000; Rothlein and Brett, 1987; Wiltz and Klein 2001). In relation to children's perceptions of their ICT-based experiences, much of the available research tended to focus on children of older ages (i.e., primary school children and/or older) (e.g., Cranmer et al., 2009; Mumtaz, 2001; Luckin et al., 2009; Selwyn, 2006; Selwyn et al., 2009). Only a few studies ventured to explore young children's thinking and attitudes toward computers (e.g., Downes, 2002; Hay, 2006; Levin and Barry, 1997; Mcnny and Vagot, 2010), and their perspectives on IWB (Yanez and Coyle, 2010). In addition, while the literature seems to assume that children play with technology (e.g., Jennings 1995; Read and Bekker, 2011: Plowman et al, 2010), there is little exploration of whether young children, particularly nursery-aged children, regard their ICT experiences as play, and if they do so, what characteristics they view as necessary for defining it as such. Therefore, my study extends the previous research by providing an account of pre-schoolers' perceptions of their activities and interactions in the context of ICT during free-choice periods.

This chapter will be organised as follows. First, the findings will be discussed in relation to both the research questions and the literature. Second, the issues of fairness and friendship will be accorded high significance, since they were prominent in the children's accounts of their ICT experiences. Third, a new conception of play based on the findings will be presented,

signalling the relationship between their perceptions of ICT-based activities as play and the influence that they were able to exert on these activities.

6.2 Ecological Context of Play

Before discussing the findings in detail the reader needs to be reminded that this thesis is looking at children's perceptions of play with ICT across three settings. It offers rich descriptions of how children perceive play which, to some extent, deliberately play down the background context in which such play takes place. This is because the really interesting focus of analysis with respect to play with ICT is the expression of children's agency given that such play most often takes place in free-time, and that children's own perceptions of play with ICT are often underreported (see page 93). However, context is not neglected in this thesis, and it is important. As Skanfors (2009) shows children's understanding of their experiences can be shaped by context, and Heath et al. (2001) show that even when children are given free choices, these choices are shaped by institutional expectations.

As discussed in chapter 2, Bronfenbrenner (1994) has been seen as useful for understanding context by introducing an ecological view of human activity (see page 104). Applying this framework (see table 7 below), children's play with ICT can be viewed as a system of interlinked elements which operate at different levels: micro, meso, macro. As explained earlier, the idea of macro and meso levels can shift depending on the focus of a study. In this study, macro covered general discourses and national policies. In particular, in both popular and educational discourse, play is often seen as free, spontaneous and, above all, a good thing for promoting the development of children (see page 26). Given these wider cultural assumptions, it may have been tempting for nurseries to translate national policies, in particular the EYFS framework, into their practice by structuring access to ICT in free-play sessions,

with little teacher pedagogical intervention. We also saw the influence of wider gendered stereotypes at the macro-level in children's play (see page 234).

Meanwhile, at the meso-level, decisions were made about staffing and resources which affected children's play experiences at a micro-level. Of course, these nursery decisions reflected national decisions about resourcing nursery education and the differentiated structure of nursery education (see for example page 18). In particular, there was the decision, firstly, to resource ICT but only at a restricted level. There were decisions too which had to be made about staffing which restricted the capability of the staff to support children and the training they might receive. In addition, the influence of the mesosystem was evident when children talked about the digital tools to which they had access at home, and which often seemed to be broader than what was available in the nursery setting (see page 18). Children watched programmes on television and played games on iPads and/or on their parents' mobile phones. They came to nursery with ICT experience and ICT skills. Very often they came with parental encouragement to use technology. In addition, children brought DVDs and CDs into the nursery so that they could share these with other children.

At the micro-level, this study has been able to unpick the social processes that constitute play and children's perceptions of play. There were a few adult-led sessions with ICT observed, but children mostly accessed ICT in their free-play time, albeit they operated within the confines of the classroom system with its well-framed and regulated routines, practices and expectations. Nonetheless, the children transformed their ICT activity into child-led and child-initiated activities. Children exercised agency by assuming roles which enabled or constrained their play (e.g., player or watcher, see page 204). In addition, teachers did impose some rules which influenced their agency: access was limited to certain times of the day, duration of the

play for each child was also limited, sharing, and other rules of social conduct were generally enforced.

Table 7: ecological view on children's digital play

	Ecological environment	Observed in my study
Macro-level	Discourses of play (e.g., play is good for children's development and learning)	Practitioners viewed play as significant for children's learning.
	Stereotypical discourses about gender	Some children had strong gendered preferences, for example, for princesses and for superheroes.
	Discourses reflecting concerns about technology in early childhood education	Practitioners tended to limit children's activities with technologies and encourage them to play outside instead.
	EYFS framework with an emphasis on play and an acknowledgement for a role for technology	This framework was translated into schemes of work which timetabled children's access to ICT in their free-play time, with some adult-led theme-focused sessions.
Meso-level	The home as a site for technology experiences	Children often talked about digital tools that they had access to at home and the related activities they participated in by themselves or with their parents and siblings.
	Decisions about level of resources in the nursery	There were ICT tools. However, there was variance between settings and a contrast with resources in the home.
	Staffing	Each member of staff was responsible for eight children, which limited their direct involvement in ICT activities. No training sessions were observed during the research and staff often said they needed more training.

Micro-level	Activities	These were mainly child-initiated and child-led. Children sought to exercise agency in play and to construct this play as self-led, fun, fair, gendered and with friends. When ICT activities lacked these characteristics, they were regarded by children as not play.
	Roles	Children wished to be actively leading their play. Practitioners tended to intervene at a minimum level. Their interventions were focused on fair access to technology, stressing the importance of sharing, and troubleshooting.
	Processes	Children sought to be agents of this play. They tended to initiate play with ICT, control it, and negotiate their objects with other children. They were aware of contextual constraints on their agency: time, rules of social conduct, teacher's instruction, etc. Processes involved negotiation, friendship relations, and moral reasoning about sharing in play.

I now discuss the findings of the study at the micro level in more detail by discussing play meanings as experienced by the children.

6.3. First Theme: Play

The findings of this study show that the children tended to perceive their experiences and activities in the technological contexts across the three settings as 'play'. This finding is in line with previous research studies (e.g., Brooker, 1996; Wiltz and Klein, 2001; Wing, 1995) that explored nursery-aged children's views of play and play activities. A study by Sheridan and Pramling-Somuelsson (2001) showed that play was what young children wanted to do in the nursery if they had the opportunity to choose an activity. Indeed, in my study, play was how the children conceptualised their ICT experiences. Furthermore, they described their actions

and interactions (e.g., choosing a program, enjoying watching something preferred, clicking, drawing, sharing a happy experience with each other, etc.) in the context of these technologies as 'playing'. They explained their various activities with technological resources as 'play' and 'playing'.

My findings are congruent with Labbo (1996). Labbo's study (1996) focused on an activity at a computer screen, and showed that children engaged in play-related behaviours at least 52% of the time. Indeed, in my study, writing/pretend typing, watching, programing the Bee-Bot, dancing, listening to music, playing a game on the computer, drawing, colouring, and controlling the activity were all characterized by the children as play. However, note that the terms 'pre-play' and 'pre-object' play were introduced Labbo (1996: 365) herself. In my study, all the children used the descriptions (i.e., play, playing) during all activities with ICT and in the discussions that I held with them. Wing (1995: 225) contended that '[T]he language the children use while engaged in activities and while describing them gives us insight into their perceptions'. If anything, my study showed the children's tendency to appropriate these resources in their play. That is, these technological resources were a source or tool for play, from their own perspectives. This finding is also compatible with Read and Bekker's (2011: 5) conclusion in their exploration of the literature on child computer interaction that fun and playability were more vital to young children in technology choice than ease of use.

The first theme, play, had five main sub-themes that are now explored in greater depth.

6.3.1. First Play Sub-theme: Self-led

The first play sub-theme was actively self-leading their play, defined by the children as self-managing their own play activity, according to their wishes and preferences. Nearly all children across the three settings expressed their intentions to be active participants (i.e., 'player(s)') in

the context of technology-based 'play'. They predominantly desired to be 'playing' rather than standing by and watching the 'playing' child/children (i.e., the 'watcher(s)'). They had powerful drives to express their agency in the context of these resources (e.g., leading the activity, making choices according to their interests, performing intentional actions). This finding is in congruence with previous research studies that have explored children's perceptions of play (Barnett, 2013; Factor, 2009; Green, 2013; Howard, 2002; Keating et al., 2000; King, 1979; King and Howard 2014; Mclnnes et al., 2009; McInnes et al., 2010; Robson, 1993; Wiltz and Klein, 2001; Wing, 1995). All of these studies stressed the elements of being in control and having choice as paramount if young children were to consider an activity as play. Wing's study (1995: 228) showed that children differentiated between play and work based on the locus of control of the activity (i.e., the ownership of the classroom activities). As Wing's study (1995: 228) showed, activities that were initiated by them and internally controlled were perceived as play, while activities that were obligatory, initiated, and controlled by the teacher were perceived as work. Like the children in my study, the children in Wing's study (1995: 228) normally wanted and tended to play and actively and voluntarily initiated their play activities.

In a study by Keating et al. (2000: 441) adults tended to view play in terms of preparation theory, a reward for work completion, curriculum learning, and/or an organizational tool for keeping children occupied. However, from the children's viewpoints, play consisted of choosing, playing in the home corner, painting, Lego, the writing station, paper, and crayons (ibid, 444). They perceived work as sitting on a table with a pencil and paper, comprising of writing and reading, and compulsory (ibid, 443). In my study, the children wanted to initiate play, choosing its content, leading it according to their interests and preferences, and managing its pace; it was not work.

The importance of self-control is echoed in a study by Ljung-Djärf (2008). This showed that children's forms of interactions may be limited or enriched for each child according to the role they had in computer activities. Such roles included owner (i.e., the child in control of the computer), participant (i.e., the child sitting beside the owner), and spectator (i.e., the child at the margin of the computer activity) (Ljung-Djärf, 2008: 61-68). These positions were found to be both static and dynamic, constituting play with computers: static as they implied specific roles with different possibilities and limits in the computing play, and dynamic as children who were more experienced with computers may have an opportunity to move from being participants on the terms of the owner to be in the owner position and thus, may control the activity (ibid, 61). The findings of my study extend that of Ljung-Djärf (2008) by illustrating how nearly all the participant children wished to be the owner of the play in the context of not only a computer but also other ICT tools such as Bee-Bot, and pretend play with non-working or replica ICT resources. Furthermore, unless they had active role in the activity (i.e., the owner or as they put it the playing child), the children did not perceive themselves as participants.

In the technological context, the children initiated play during their free-play time, and aimed to be actively involved in it by playing (i.e., having choice and control over the play process). According to Rogers (2010: 126), dimensions of choice include the material, location, playmates, outcome, and temporal. In my study, children had more control over two elements (i.e., materials and resources and outcomes) but not a choice over the location of the equipment, duration of the activity, nor over the playmates (see Figure 17). Jason, a participant, explained that the computer 'does not roll like the car' so he could not 'play' with it outside (01/12/2013 B setting). Ava, a participant, reasoned that playing on the computer outside could expose it to water and that would 'make it feel sick' (29/05/2013 W setting). The desktop computer, across the three settings, was fixed in the computer/ICT area for the whole research duration. Its design features did not allow the children to incorporate it fully in their free spontaneous play

(e.g., wired keyboard and mouse to the screen, and its bulky size). The teachers also expressed a concern over children not dealing with the technological devices 'nicely', so causing them to get damaged. This concern also extended to the CD player, which was fixed in location. Regarding replica ICT resources, the children had the opportunity to move with them freely in their play areas as they wished, and this gave them greater flexibility and may have encouraged them to play more co-operatively.

Figure 17: dimensions of choice in play (adopted from Rogers, 2010: 162)

Dimension	Choice
Materials and resources	What shall I play with? (ICT area)
Location	Where shall I play? (ICT/Computer area)
Playmates	With whom shall I play? (My friends)
Outcome	What and how shall I play? (a preferred content, independently)
Temporal	When and for how long can I play? (Waiting for a turn, and playing for the duration of a turn)

Children demonstrate the ability to think independently from a very young age in terms of making choices, expressing preferences, describing their abilities and difficulties, and desiring to solve problems on their own (Hendy and Whitebread, 2000: 248-251). They develop and learn through active participation and interaction with others in their environment (Mashford-Scott and Church, 2011: 17). Furthermore, the development of choice is important for their autonomy development (Robson, 1992). This is because children's self-initiated activities allow them to obtain a sense of autonomy and control over their environment, which is in turn important to the development of their identity and competency to achieve their own aims (Green, 2013: 8). In my study, the children strived to have personal agency (i.e., their belief in their capacity to act on the situation, and thus influence it) (Mercer, 2012: 49) in that they intended to play.

6.3.2. Second Play Sub-theme: Fair Play

Fairness was perceived as 'sharing' on the basis of equal turn-taking procedures. In the children's terms, 'sharing' was defined as 'letting each other play' (i.e., 'have a go'). These rules of turn-taking (e.g., whose turn was next, no pushing, one's freedom to make decisions as to the pace and the content of the activity while having their 'go', others should wait for their turn, the length of the turn, etc.) were normally defined by 'grownups' and/or 'the teacher', and were endorsed by the children. In other instances, the children themselves negotiated and developed these rules, or transgressed them. In the instances of transgression and competition over resource access and control, the children made reference to these rules. Rules can be seen as 'cultural resources to which members may orient in order to make sense of their social worlds' (Cobb-Moore et al., 2008: 601).

Breaking the rules of the activities led to conflicts and competition among the children in play. In nursery settings, as is the case with other settings, the limited availability of resources in the classroom and/or in the playground invokes conflicts among children (Green and Cellissen, 2008: 161). The conflict is defined in the literature as an instance 'in which one person 'protests, retaliates, or resists the actions of another'' (Killen and Nucci, 1995: 58, inverted commas in original). Accordingly, in my study, the children frequently became involved in conflicts, either attempting to access the ICT play resource or protecting their control. This is in line with previous studies that explored children's interactions in the context of object play (e.g., Chen et al., 2001; Dawe, 1934; Killen et al., 2000; Killen and Nucci, 1995; Killen and Turiel, 1991; Laursen and Hartup, 1989; Roseth, et al., 2008). These studies revealed that object disputes among young children are the most common form of conflict (i.e., disputes over sharing play objects such as toys). My findings are also compatible with that of Shahrimin and Butterworth's study (2002) and O'Hara's (2008) study. Shahrimin and Butterworth (2002)

explored five-year-old children's collaborative interactions in a multimedia computer environment. This study showed that children's discourse reflected their efforts to gain physical control over the mouse device and share the technology with their partner. O'Hara's (2008), Plowman et al.'s (2010) and Plowman and Stephen's (2005) studies of nursery-aged children's activities with ICT showed how young children's interactions were concerned with managing the technical aspects of the activity.

What follows now is a detailed analytic discussion of the elements that may have induced the children to promote the concept of fairness in their ICT-based play activities. Of particular significance in this regard were the incidences of conflict, such as control, management and protection from intruders. In the literature on object dispute, the most decisive issue is the attempt to balance the child's needs with other children's needs (Killen and Nucci 1995: 57) in relation to resource distribution (Chen et al., 2001: 525). As a result, there is an incompatibility which is expressed 'when one person overtly opposes another person's actions or statements.' (Shantz, 1987: 284) Being aware of conflicting needs, the children in my study desired to play on an equal basis, asking 'when is it my turn?', 'it's not your turn?' 'he/she is taking very long', 'it's for all the people', 'after you it's my turn', 'they have a turn and me too', 'Not only you, I want to play', etc. All these expressions signalled the children's desires for turn-taking. This finding is in line with previous studies that showed nursery-aged children's preference to the principle of equality (e.g., McGillicuddy-De Lisi, Watkins, and Vinchur, 1994; Sigelman and Waitzman, 1991; Wong and Nunes, 2003). In this study, this equality was based on equal turn taking, as the play object dictated this procedure.

The children's preference for fairness may be attributed to the fact that the equality rule (i.e., sharing on a turn-taking basis) is 'a deeply ingrained value, perhaps because children are socialized quite early to 'share and share alike.''(Sigelman and Waitzman, 1991: 1375, inverted

commas in original,) In particular, the pedagogical context encouraged the children to play on an equal basis, as practitioners resorted to an equality concept to manage children's play, solving disputes and conflicts among them over play access, control, and rights.

Another aspect of the pedagogical context was that ICT-based activities nearly always took place during free-play time. In free-play time, the practitioners tended to let children manage their play on their own unless something serious arose. Hence, the 'crowded' situation triggered the children to raise the concept of sharing on an equal basis. Research on young children's moral development shows their ability to differentiate between moral (i.e., behaviours that effect others' welfare or rights) and conventional (i.e., rules for social interaction in the classroom) rules (Nobes and Pawson, 2003; Smetana et al., 1993; Tisak, et al. 2001), and between justice-based and care-based moral reasoning (Wong, 2010). These run alongside their awareness of personal issues (e.g., friendship and choice) (Nucci and Weber, 1995: 1438). Moral rules seem to be more salient in young children's reasoning about rules than conventional ones (Smetana et al., 1993: 211). Accordingly, moral transgressions were judged to be 'wrong' (ibid, 212). This was evident in many instances in my study.

Preferring to play on an equal basis, nursery-aged children normally tend to disregard some of the contextual information in pursuing their play (e.g., their relationships, age, gender, etc.). This is consistent with that of Sigelman and Waitzman's (1991: 1375) study, which showed that nursery-aged children inclined to disregard the contextual information when considering equal distribution of play resources. However, this is not to suggest that the children in the present study completely disregarded the contextual information of their ICT-based play activities, as will be discussed below.

Wong and Nunes (2003) investigated whether pre-school children would share toys equally across situations or on the basis of the characteristics of the recipients. Their study drew

attention to the complexity of young children's decision-making, for example, consideration as to whether the recipient was younger than or of the same age as the playing children, and contextual issues such as whether the late-comer (i.e., the recipient child) was friendly or aggressive. In my study, children's distributive justice decisions were based on turn-taking, and tended to be applied regardless of the characteristics of the recipients (e.g., attitudes, age, social relationships, and gender).

Another element promoting the concept of fairness was that only one child could play with a tool at a time. The children showed clear awareness of this, and referred to it throughout. Furthermore, when some children volunteered unsolicited help to the playing child (i.e., a prosocial behaviour), or made suggestions about the direction of the activity (e.g., demanding a certain game) and/or snatching the mouse or touching the equipment, the playing child protested. At this point, the children either terminated that help when they felt they could handle the tool without it, became annoyed, or would quickly respond affirmatively that 'it's not your turn' or 'I can do it' (see findings chapter). This level of confidence with technology, even at times misplaced, seemed to arise from their extended experiences of using ICT. All of them talked about their play experiences on their parents' smart phones, iPads, and desk/laptop computers. This may have limited co-operation among them.

In my study, children might have regarded ICT resources to be temporarily owned by them, as they positioned themselves as the players. This is in line with Newman's (1978: 238) study, which revealed that young children were aware of ownership which was indicated by outsiders requesting permission of participants to use the owned objects or to join in the play. In my study, the participant (i.e., the playing child) had authority over the play object during their turn, managing the course of the play episode and securing participation from outsiders (Newman, 1978: 237-238). Therefore, they had the right to keep and preserve their turn from

intruders. However, at the same time, they did not entirely ignore the rights and wishes of other children. On many occasions, the playing child would ask 'what do you want?' 'do you like this one?' 'what about this?', acknowledging the other child(ren)'s wishes but without giving up their play position (i.e., the leading role of the play activity). Sharing on an equal turn basis was the way to maintain play opportunities and rights to each individual child.

Fieldwork observations and field notes show how the children made references to the rules for turn-taking in the face of other children crowding around the ICT equipment, transgressing these rules. This particular point (i.e., conflict and limited collaboration among children) was a major source of concern for the practitioners. They believed that the technological contexts were failing to support children's social development, and thus, at times discouraged children from 'using' these resources. The children themselves also perceived negatively instances of conflict and competition. This is resonant with other literature on crowding around the resources (e.g., Miller and Olson, 2000). In the light of these tensions, the practitioners viewed outdoor play and other indoor play activities as better positioned to encourage children's social development by providing more opportunities for them to interact with their friends and other children.

As discussed earlier, there is a set of complex inter-connected elements that encouraged the children to evoke the concept of fairness when carrying out their play in the context of ICT. They used this concept to protect their rights in conducting their play the way they liked. From my own perspective, this did not express egocentric thinking on the part of the children, as described in previous research (e.g., Romeo et al., 2003), but rather, it is an expression and acknowledgment of their moral reasoning. My view is in agreement with that of Killen and Turiel (1991: 254), which shows that young children's conflicts are not mere attempts to achieve selfish desires. Instead, they tend to negotiate their needs and were aware of others'

perspectives (ibid, 254). Furthermore, it might also be the case that they intended to express their awareness of personal issues (i.e., the right for decision-making) in relation to their play (Nucci and Weber, 1995: 1450). Nursery-aged children differentiate between their personal conceptions (i.e., the right for decision-making) and their social and moral obligations (ibid, 1450).

It seems that the children used what is referred to by Corsaro (2005) as cultural reproduction by using adult rules in their own peer culture and reproducing it and transforming it in creative ways.

6.3.3. Third Play Sub-theme: Friendship

Nearly all the children in this study expressed their desires to be with their own friend(s) while playing with ICT resources. This finding is congruent with previously conducted studies with young children about their play and friendship experiences in early childhood education (e.g., Corsaro, 1985; Factor, 2009; Janisse, et al., 2014; Muller and Perlmutter, 1985; Sheridan and Pramling-Samuelsson, 2001; Walden et al., 1999). Sheridan and Pramling-Samuelson (2001) found that children expressed their desires to play with their friends in the nursery. In my study, the children were rarely observed playing on their own with ICT resources. Moreover, their drawings included references to their friends and featured their enjoyment of this play with them (see chapter 5). However, whether this type of play is with, or in the presence of, a friend(s), will be elaborated below.

Janisse, et al. (2014) found that compared to children in classrooms without computers, low-income African American pre-school children in classrooms with computers interacted more socially, verbally, and affectively. They interacted with their peers more, and were less likely to play alone than children who did not have computers in their classrooms (ibid, 86).

Moreover, Muller and Perlmutter (1985) explored pre-school children's problem-solving interactions in two contexts, computers and jigsaw puzzles. The study showed that pre-school children exhibited more social interactions (e.g., co-operation, sharing on a turn-taking basis, verbal and non-verbal assistance) in the context of the computer activity. Whilst children spent 63% of their time on the computer with a peer, of which 18% was spent with a friend, they spent only 7% of the time with a peer in the context of jigsaw puzzle game. In addition, while children spent only 11% of their time alone on the computer, they were alone 55% of the time at jigsaw puzzles. Muller and Perlmutter (1985: 181) concluded that since helping and co-operation were common among children, 'computers can provide a context for social interaction which may contribute to the acquisition of problem-solving skills.' My study is much less certain. Collaborative play was unusual for reasons outlined. Certainly, in comparison with sand and water play, there might be something particular about jigsaws which encourages individual play. In addition, the novelty of the computer might have influenced children's interactions in Muller and Perlmutter's study (1985: 181). In my study, the children *hardly ever* found ICT resources as novel. This generation of children, as Read and Markopoulos (2013: 4) explain, 'have not known a world without mobile phones, social media, and Wikipedia', and children now have more ICT-related experiences than those of children in Muller and Perlmutter's study (1985).

In essence, friendship serves as 'a means for positive affect in the early-years of life', and its interactive processes focus on 'play negotiation, emotion regulation, and conflict management' (Gifford-Smith and Brownell, 2003: 452). Indeed, Kyratzis (2004: 628) quoted Berentzen's (1984) statement that 'can I play?' (inverted commas in original) in reference to its generation of the social interaction and order in the classroom. A vital aspect of young children's peer culture is 'simply 'doing things together.'' (Corsaro and Molinari, 1990: 221, inverted commas in original) In essence, 'doing things together' or *playing* together denotes socially oriented

processes (e.g., sharing, co-operating, jointly creating and making in imaginative and pretend play, interacting verbally and/or non-verbally, enjoying the company of each other, and so on).

The nature of doing things together was transformed in the context of ICT-featuring play activities. In a sense, ICT-based play activities were essentially social, not isolating, as the children often expressed their desires to play in the context of technology in the *presence* of a friend(s). This created a tension. On one hand, they expressed their preferences to own their play experiences (i.e., to express their agency). On the other hand, they did not like to *be* on their own while playing, since this would make them feel 'lonely' and/or 'sad'. The preference of the children to be in the company of their friends while playing with ICT is in accordance with Corsaro's (2005) notion of peer culture. In this culture, peers and friends provide children with emotional security, which is 'most certainly a strong factor in children's valuing of participation and communal sharing in their peer cultures and friendship relations' (Corsaro, 2005: 113).

This tension, for instance between individual wishes and friendship preferences, is further exacerbated by the nature of the technological equipment, in the sense that its design features (e.g., one mouse, one be bot, etc.) supported play on an individual basis (i.e., turn-taking). Hence, the instances of sharing, although evident in turn-taking normally imposed and overseen by an authority figure, were not straightforward. Many children strived to preserve their play once it was their turn to play, and thereby, continued to *play* even though they were supposed to hand over their position to the next child. They did so by resorting to many techniques such as ignoring, extending their turn by denying that it finished, reasoning that the game still needed just a little time to finish, and so on.

As discussed earlier, the turn-taking procedure meant waiting for a turn. This tested them. As Fernie et al. (1993: 96) showed, 'newly-developed impulse controls are tested as turn-taking

and turn-waiting become major issues in the fabric of social interactional life'. Turn-taking influenced social relationships both in positive and/or negative ways. The children perceived waiting as 'boring' and 'it takes very long'. Moreover, in the face of stimuli presented by ICT resources (e.g., sounds from the computer, music, photos, moves, etc.), they found it very tempting to *participate* in play. Thus, unwilling to wait, the children often transgressed the turn-taking procedure. They resorted to strategies to get their needs met (e.g., making requests by asking 'when it's my turn?', offering suggestions, volunteering help, non-verbal interactions aimed at taking over the tool, complaining, reminding the playing child of the duration of their turn, leaving and coming back to the activity, using friendship terms to negotiate their needs, bargaining, and, in very few instances, fighting).

Corsaro's ethnographic study (1981) showed how young children utilized friendship language (i.e., being a friend) for the purposes of inclusion in, or exclusion from play events. In my study, the children used friendship terms to negotiate with other children. They created a peer culture, which was influenced not only by routines, rules, and the nature of the equipment but also through negotiation with other children. For example, friendship concepts were evoked to prevent conflicts getting out of control, and in order to maintain social relations. This may involve offering to become a best friend and bargaining (e.g., giving toys, an invitation to a birthday party, etc.). These occasions showed the children's social competence, namely 'the ability to meet one's own needs while maintaining positive social relations with others' (Green and Cillessen, 2008: 161).

In other instances, which were much more common, the children failed to negotiate their needs, and focused on attempts to control the equipment. More often these instances resulted in conflicts even among friends. In these particular instances, the children's strategies were perceived as 'negative collaboration' by the playing child(ren) (Romeo et al., 2003: 338).

In terms of friendship and conflicts, children's play with ICT differed to traditional play in many aspects. First, definitions of friendship relations tend to limit this relation to two children (i.e., dyadic relationships) (e.g., Bagwell and Schmidt, 2011; Burr, et al. 2005; Dunn, 2004; Howes, 1983; Howes et al., 1992). For instance, Howes (1983: 1042) defined friendship as 'an affective tie between two children, which has three necessary components: mutual preference, mutual enjoyment, and the ability to engage in skilful interaction'. Although the children might have had mutual friendship relationships, in discussions and fieldwork observations most of the children named more than one friend and tended to use 'friendship strategy' to achieve their own aims in the context of play with ICT, as discussed earlier. What is interesting here is that in many episodes of play with ICT, the children made explicit references to friendship relation with the playing child(ren) in order to manage their wishes. It seems that they tended to implicitly regard other children as friends. It also might be the case that friendship in early childhood is of many kinds (e.g., best friend, just a friend) (Dunn, 2004: 49).

Second, conflict was not limited to two children. With a few exceptions (e.g., Laursen and Hartup, 1989), the explorations of the instances of conflict among pre-school children were often concerned with dyadic (i.e., conflicts among two children) or triadic (i.e., three children) exchanges of conflict (e.g., Eisenbery and Garvey, 1981; Sheldon, 1990). In ICT-based play, conflict often involved more than three children, and sometimes six or more. In these cases, Maynard (1986) argues that disputes are not limited simply to two parties. For instance, 'given one party's displayed position, stance, or claim, another party can produce opposition by simply aligning against that position or by aligning with a counter-position.' (ibid, 281) Thus, it is 'possible for several parties to serially oppose another's claim without achieving collaboration.' (ibid, 281)

Third, ICT resources were different from traditional play objects such as toys, dolls, blocks, etc. ICT resources offered users a level of interactivity that seemed to capture young children's attention in ways that other resources did not.

In my study, in some respects conflicts among friends accorded with the literature that explored friendship conflicts over resource possessions (e.g., Bagwell and Schmidt, 2011; Laursen and Hartup, 1989; Hartup, et al., 1988). Particularly, Hartup et al.'s (1988: 1590) study showed that the frequency of conflicts among friends did not differ from that of conflicts among non-friends. Furthermore, neither the length of these conflicts, nor the situation that evoked them, differed between friends and neutral associates and/or non-friends (ibid, 1599). However, Hartup et al. (1988: 1599) and Laursen and Hartup (1989: 282) found that conflicts that occurred among friends differed from those with non-friends in that friend conflicts were less intense, were resolved more frequently with disengagement, and more frequently resulted in equal or partially equal outcomes and/or compromise. In addition, continued socialising was more likely following conflicts between friends than after conflicts between non-friends (Laursen and Hartup, 1989: 282). In my study, most conflict instances were not limited to dyadic peers, although they were mainly between two parties: the player (i.e., the child in control of the play), and the intruder(s) (i.e., bystanders who were curious to play). In most cases, the intruder party included more than two or three children waiting for a turn. Most of the observed episodes contained conflicts between the player and the intruders over resource possessions, the length of the turn, reserving control of the resource in the face of intruders' attempts to take over, pushing, rejecting help from offers, confirming their right to govern the activity the way they wished, and/or, on very rare occasions, hitting. The emotional intensity of these conflicts varied from moderate to serious levels. In ones with greatest intensity, friendship relations were announced as ended, normally by the transgressor (i.e., intruder).

Generally, pre-school children normally do adopt a protecting stance (i.e., trying to block intruders' attempts to access play), which may make gaining access to play challenging in pre-school settings (Corsaro, 1979: 330). This protective stance can be attributed to the fact that the vulnerability of their interaction to minimal disruptions may break it down (ibid, 330). Nonetheless, children of this young age tend to be 'both more concerned with and have more complex strategies for access than for withdrawal.' (Ibid, 335) This also seemed to be the case in my study. For example, instances of protective position were given (see chapter 5).

While co-operation requires children, whether friends or otherwise, to work together toward a common enterprise or project (e.g., solving a problem, building a tower out of blocks) (Dunn, 2004; Eckerman and Stein, 1982), this was not necessarily the case in most of ICT-based play. Generally, all the children expressed clearly their tendency to conduct their 'turn' on ICT on their own ways. This result is consistent with that of Romeo et al.'s (2003: 337) study, which showed children's tendency to use the touch screen independently in accordance with their wishes and programme preferences, to the exclusion of other children and their wishes. In my study, almost any attempt to intervene in the play turn, whether by a friend or other children, (e.g., making suggestions, offering help, touching the mouse or the keyboard, making demands, snatching the mouse, etc.) was perceived as unwanted disruption. These instances of disruption were perceived as 'annoying' by nearly all the children. Children did not want to do 'things together', but to 'do things in the presence of friends'. The fact that the children wished to play on their own did not mean that the activity was socially isolating and/or solely negative. Although not common, there were some instances of successful negotiation among children of access and control of the equipment. Furthermore, many children enjoyed with their friends watching a programme (e.g., Big and Small House, Swashbuckle, Peter Rabbit, Octonauts, Tree Fu Tom, Super Numtum, the Kingdom of Fluffy) or sharing their enjoyment by making jokes, inviting others to have a look at something 'funny', and laughing. This result was

consistent with that of Labbo's study (1996), which showed that children displayed playfulness, shared jokes, and emotionally responded to other's graphic jokes on the computer screen (ibid, 369-370).

The occurrence of instances of conflict about resource distribution was not completely negative. Most of the observed conflict episodes lacked aggression (Chen et al, 2001; Laursen and Hartup, 1989; Shantz, 1987; Thornberg, 2006), and after all, conflict is a necessary aspect of any close relationship (Vespo, 1991: 24). Conflicts may enhance children's social-cognitive development, and lead to greater awareness of others' perspectives and feelings, a toleration for differences, and regulation of emotions (Bagwell and Schmidt, 2011; Chen et al., 2001; Vespo and Caplan, 1993). Negotiation and/or turn-taking conflicts present the children with problems to solve, and problem solving is particularly crucial for the development of their thinking as it encourages awareness of others' perspectives and needs (Björklund, 2010: 79). Furthermore, disputes among children help them negotiate and renegotiate their social order (Cobb-Moore et al., 2008: 596), as they, when challenged, would provide justifications for their actions (ibid 602).

6.3.4. Fourth Play Sub-theme: 'Fun'

The children perceived play with ICT resources as a source of 'fun'. ICT-based activities were their favourite form of play, and they felt happiness and excitement while engaging in ICT activities (e.g., clapping their hands, smiling, etc.). This is in line with Robson's study (1993: 42), which showed that children associated play with sheer enjoyment, and with Yanez and Coyle's study (2010: 3), which showed that young children viewed the introduction of IWB to the classroom as contributing to making activities more fun and enjoyable. Indeed, in my study, children justified their decisions to engage with ICT based on their reasoning of 'because I

want to'. This apparently simple phrase expresses a very deep meaning (i.e., they were genuinely interested in this type of play).

While the enjoyment refers to the affective part of the experience (i.e., feelings of happy and enjoyment), the evaluation of that affective aspect of the experience (i.e., positive or negative, favourable or unfavourable, enjoyable or boring) refers to the attitude towards it (Albarracin et al., 2005: 5). Hence, while having a positive attitude toward play (i.e., liking it) refers to its evaluation, 'fun' refers to the experiential aspect of the play experience (i.e., enjoying playing) (Nabi and Krcmar, 2004: 290).

It is interesting to clarify children's feelings of fun, and whether they perceived fun as essential for describing activities as play. According to Reeve (1989: 99) intrinsic motivation is a state of mind 'characterised by interest and enjoyment that is responsible for the willingness to initiate and continue free-choice behaviour.' Both interest and feelings of enjoyment arouse intrinsic motivation in an activity by initiating and guiding the attention and exploratory actions, and willingly continuing it, respectively (Reeve, 1989: 83). While motivation can have myriad meanings, 'integral to its definition is the exertion of effort.' (Fazio and Olson, 2007:151) Hence, intrinsic motivation implies voluntary engagement in a task, based on an interest in it and the satisfaction and pleasure gained from participating in it (Pelletier, et al., 1995: 36). All of the children were intrinsically motivated to engage in ICT-based play activities. Their intrinsic motivation in these play activities represented their voluntary engagement, their feelings of enjoyment and fun experienced during the play.

The children believed that play was what they were able and wanted to do in the context of ICT-based activities. This self-efficacy (Bandura, 1992) perception meant that they were more likely to play when they had the opportunity. ICT was intrinsically motivating for the children because of its nature. The children mentioned many features: 'it [IWB] never stop[sic] games',

‘it [IWB] has a magic finger’, ‘it’s [the computer] got games’, ‘it [be bot] moves itself’ that stimulated them. There were elements of interactivity, representation of the content through colourful images, and, in the case of the IWB, supporting the children’s different learning styles (e.g., touch, visual) (Yanez and Coyle, 2010: 4-9; see also section 5.2.4. page 222).

Children enjoyed leading play with ICT, and wanted to position themselves as the ‘player’. At times, the playing child did feel annoyed, but the activity for them was still regarded as play as long as they held to this admired position. In addition, a number of children acknowledged that they enjoyed play with ICT because it provided them with opportunity to be in the company of their friends. This is in line with a study conducted by Dunphy and Farrell (2011), which showed that children enjoyed play, since it provided them with an opportunity to interact with their friends. However, in terms of my study, the presence of friends was not to ‘disturb’ the playing child’s active role in the activity, as discussed earlier.

Now I consider whether fun was a decisive element in terms of regarding ICT-related activities as play or not. In my data set, I could not find instances of children using ICT and describing it as play when they were not having fun. The contextual influences causing feelings of ‘annoyance’ were caused by many reasons depending on the dynamic of the situation (e.g., intervening from others, shouting, repeated requests from others, etc.). Although feelings of fun may have disappeared under such circumstances, they were essential for an activity to be characterised as play from the child’s perspective. Thus, it is an intrinsic characteristic of play. For even when their feelings of fun evaporated under some circumstances, they soon restored these feelings after passing these obstacles.

This line of reasoning does not fit with that of King (1979), who showed the element of fun as not essential in children’s definitions of play. In her study, the elements of self-control and voluntarily were more important in characterising an activity as play from the child’s

perspective. It might be the case that King's study was carried in the formal environment of the classroom where teachers' presence may have influenced how children perceived their activities, work or play. In my study, the ICT-based activity took place mainly during free-play time. During this period, the children had a variety of activities to choose from. Internally sensing the element of fun experienced previously, they willingly decided to join in technology-related activities. This is in line with Thomas et al.'s (2006: 56) contention that focusing on the child's subjective feelings of enjoyment and perceptions of playfulness does not limit play to observable behaviours and unravels the uniqueness of play. Their study showed that when perceiving an activity as play, children are enthusiastic and motivated (ibid, 57).

6.3.4.1. Sub-theme of Fun Play: 'Like it'

Eagly and Chaiken (1993: 1) define attitude as 'a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour.' According to Maio and Haddock (2010: 4) and Fishbein and Ajzen (1975:11), although there are many different conceptions of the concept of attitude, there is a wide-spread agreement on the centrality of the evaluative nature of the attitude (i.e., evaluative response to an object). Increasingly, there is a tendency among attitude researchers to differentiate attitude from other related terms that are often considered as constituting elements of attitude. These include belief (i.e., thoughts, ideas, information, concerns), affect (i.e., emotion), and behaviour (i.e., intentions, actions, and experiences) (Albarracin et al, 2005; Maio and Haddock, 2010). While these terms may bear some similarity to, or used interchangeably with, the concept of attitude, attitude is mainly an evaluative response to an object (Oskamp and Schultz, 2005: 17). For instance, attitude refers to one's evaluation of their affective reactions toward something (e.g., positive, negative,

favourable, unfavourable), whereas affect denotes affective reactions to, or feelings about, something (e.g., happy, sad, fun, excited, frightened) (Albarracin et al., 2005: 5).

In my study, the children across the three settings had positive attitudes toward ICT-based activities. They perceived these activities as opportunities to play, and evaluated their play experiences with ICT as positive. They liked to self-lead their play and shared their feelings of enjoyment and excitement with other children. They also enthusiastically tended to participate in these activities (i.e., to play). This finding that the children had a positive attitude toward play in the context of ICT resources is congruent with the play literature (King, 1979; Robson and Hargreaves, 2005; Rothlein and Brett. 1987; Wilta and Klein, 2001; Wing, 1995). King's study (1979: 85) found that play was the most liked activity by young children. And positive feelings and thoughts about an activity emanate a crucial characteristic of play, which is in the play literature the intrinsically motivating quality (Lillard et al., 2013: 2). That is, the child freely aims to play for the sake of play rather than for extrinsic rewards (e.g., money, sweets, etc.).

In my study, playing with the technological resources was something children liked to do. They voluntarily initiated their play with ICT, actively participated in it, frequently played with these resources, and evaluated their play positively. In essence, having a positive attitude toward ICT-based play (i.e., like it) was a motivator for engaging in it, otherwise, these activities would not be interesting or meaningful to the children. This point can be summarised in the words of a three-year-and-nine-month-old British child, Chris at W nursery. He explained that 'I like it[playing with the computer and IWB] because I am doing it' (15/05/2013).

This quality of their play was subjective, and was related to their perception of the ICT activity as play. Howard (2002) maintains that the child's subjective or internal qualities that they bring to an activity (i.e., playful approach and feelings) are dependent on the child's perceptions.

When children consider an activity as play, they approach it playfully, participate in it more enthusiastically, and positively feel about it (ibid). In my study, the children playfully constructed ICT-based activities through their subjective interpretations of the attitude object (i.e., ICT tools) and their actions pertaining to it as play (Ledgerwood and Trope, 2010: 49), as will be discussed further below.

The contribution of this study to the literature on play is that from the child's standpoint, having a positive attitude towards an activity was necessary if they were to get involved in it (i.e., playing). However, merely evaluating these activities positively (i.e., liking it) was not conducive to naming or calling them 'play'. The children normally expressed their positive attitudes (i.e., liking) toward a range of activities that were sometimes teacher-led such as circle time and story time, in which they expressed their awareness that they had to 'sit quiet' and 'listen' to the teacher. The point here is that there was something more for the activity to be labelled as play. This is not to mean that their attitudes did not have a role in describing an activity as play. Rather, it is an attempt to have a more open, rather than limited, view on their attitudes and their role in describing an activity as play. Feeling positive about these ICT-based play activities along with other attitudinal aspects and subjective qualities were conducive to describing an ICT-based activity as play.

This raises some general issues around attitude and object. Here, Ajizen and Fishbein (2005: 173-174) contend that understanding the role and influence of attitude on behaviour is based on distinguishing two types of attitude: a general one toward an object (e.g., a group, an organisation, an event, a toy, etc.), and another, more specific one toward performing certain behaviours in relation to an object (i.e., '*attitudes toward a behaviour*') (emphasis in original). These two aspects of the children's attitudes toward ICT-featuring activities should be pointed out. In all the three settings, children perceived ICT tools as play tools that were fun (i.e., object

attitude), and tools that they liked to play with and tended to evaluate their experiences of play positively (i.e., attitude towards action).

Attitudes are so important in our daily lives that without them, '[O]ur environment would make little sense to us; the world would be a cacophony of meaningless blessings and curses.' (Fazio and Olson, 2003:139) The children's attitudes gave colour to their ICT activities. They made meaning out of ICT activities and experiences through their play intentions, perceptions of ICT and their actions and interactions in its context, beliefs about play in ICT context, and affection for it. They perceived ICT tools as play media, and believed that they could play with them when they had the opportunity. They tended to associate positive thoughts, beliefs, and attributes with ICT technologies.

Children's previous experiences with technology mediated their attitudes towards both the attitude object (i.e., these tools) and behaviours concerning that object. The way in which the young children formed these dispositions, called by Fazio and Roskos-Ewoldsen (1994: 80 emphasis in original) the '*manner of attitude formation*', is generally seen as based on their direct first-hand behavioural experiences. Playing with tools generates dispositions (i.e., evaluative tendencies), predominantly positive (Crano et al., 2010: 3). However, this was not straightforward (Johnson and Boynton, 2011: 19). For example, experiences gave them a general disposition to use technology. However, they still had positive attitudes towards things they never experienced before such as Bee-Bot and IWB.

However, under certain circumstances, the participant children evaluated their affective reactions to ICT experiences as negative (i.e., dislike). This was particularly so when other children shouted, interfered in the play, made continuous requests, and/or fought over control. This finding is consistent with that of Wiltz and Klein (2001: 231) which reported young children feeling negative about experiences that interrupted their play. In addition, the element

of gender seemed to play a role in the feelings of fun. Although gender was not foregrounded in the aims of the present study, it became apparent during fieldwork observations that particular types of content were favoured by either boys or girls. Perceiving the content as 'girly' (e.g., princesses) or 'boyish' or 'for boys' (e.g., transformers, angry birds) made children of the opposite gender feel bored, and hence they either quitted the activity or requested a change of the content.

What is important here is that evaluating the ICT-featuring activity as enjoyable was essential for the participant children's characterisation of it as play. In particular, attitudes play an essential role in regulating and guiding the child's behaviours and interactions with the environment and its objects (Ledgerwood and Trope, 2010: 40). One such function is providing the subject with a brief evaluation of whether the attitude object, in this case ICT tools, is favourable or unfavourable, and then the subject may act accordingly (Ledgerwood and Trope, 2010: 40). Having evaluated the activity as enjoyable, the children perceived it as play, and enthusiastically participated in it (i.e., played with the activity). This interpretation is strengthened in that once the children evaluated something as boring, they quit it, avoided it, and went on searching for play with something else.

6.3.5. Fifth Play Sub-theme: Gender

The exploration of gender was not envisioned in the design of the study, but as the fieldwork progressed, I started to notice how it exerted influence on children's choices of programmes. The influence of gender was more apparent in the S setting than in the other two settings (W and B settings).

As discussed in section 3.5.3 (see pages 138-141), there were differences between the settings in terms of access to ICT resources. In S setting, the children had access to the Internet, and to an iPad. This flexibility in access may have allowed more room for the children's gendered

preferences to appear. The girls in this setting were observed watching and interacting with programmes that featured princesses such as Snow White and Tinkerbelle, and to try to block boys from watching these (see chapter 5). This finding (i.e., having more choice was conducive to the appearance of the children's gendered preferences) fits with that of Waite et al.'s (2007) study. Waite et al.'s study showed that when children had a choice, boys and girls tended to make different uses of available software.

The influence of gender was less apparent in W and B settings. While it is very difficult to speculate on the issue, it could be the case that the children at W and B settings had a less gendered approach because they had different patterns of access from the children in S setting. In W setting, the children had access to cbeebies website but not YouTube. Cbeebies featured programmes that were often aimed at children of both genders such as Peter Rabbit, Justine's house, Grandpa in my Pocket, Swashbuckle, Octonauts, etc. Both girls and boys were observed watching and interacting with the same programmes, although boys showed a preference for 'Mike the Knight'. In B setting, the children did not have access to the Internet, and only had a limited choice of programmes installed on the computer (e.g., a set of educational programmes including games for learning maths and literacy such as Wicked Wizard). These were used by children of both genders.

This result resonates with that of a recent study, which explored young children's toy preferences and DVDs/programmes choices (Francis, 2010). It showed that while male children's choice to view materials remained stereotypically gendered as masculine, children of both genders tended to choose 'androgynous' materials (e.g., Shrek) (ibid, 329 commas in original). However, the children in W setting, when they brought their DVDs from home, tended to choose DVDs that reflected their stereotypical gendered identities (e.g., Fireman

Sam, Star Wars, Postman Pat). The influence of gender also appeared in their choices of play themes and genres in their free play in the playground.

There is some evidence in the research to indicate that girls' use of ICT supports their social interaction, while boys' use of ICT supports their construction abilities and their leisure (Aubrey and Dahl, 2008; Francis, 2010). However, my study neither supports nor contradicts this literature. Gender differences in many areas were not obvious, but again, the study was not designed with gender in mind.

6.4. Second Theme: Not-play

The children elaborated on their ideas about what constituted as not play. Their criteria for judging activities as not play can be gleaned from both their natural talk in activities with ICT and their explanations that they provided in my discussions with them. These explanations provided evidence on their awareness of the contextual influences on their experiences. The children applied these criteria consistently across the three settings.

6.4.1. No Influence

'We've got to play on it [the computer]' (Aiden W setting, 22/04/2013).

The findings of my study serve to unpack the nature of the technological play by focusing on children's perceptions (Howard, 2002). ICT-based activities, as discussed earlier, had to have certain features if the children were to describe them as *play*. When the children were not able to self-initiate and self-lead their play, they did not tend to view the activity as play.

This finding is in agreement with previous research, which shows that nursery children seemed to be more likely to perceive an activity as 'work' when it was mainly compulsory, teacher-led and seated-based (Ceglowski 1997; Factor, 2009; Keating et al., 2001; King, 1979; Robson,

1993; Wiltz and Klein, 2001; Wing, 1995). In my study, the children sought to transform their ICT-based experiences into 'agentic experiences' through positioning themselves as doing activities of their own choice (Kumpulainen et al., 2014: 211-213). Rather than being mere passive players in the context of the technological artefacts, as Jennings contends (1995: 140), the children rejected such positioning and referred to it as 'boring' and hence not play.

6.4.2. Boring

Jude[head-teacher, talking to the crowded children on the laptop]: you cannot all go on it! only two at a time to play a game! (18/12/2013 S setting)

In my study, the elements of fun and positive attitudes (i.e., favouring ICT activities, and evaluating them as enjoyable) were essential in the children's descriptions of play. Once the child started playing, they felt happy. And when disturbed, they felt angry and strived to restore their play and feelings of fun. In fact, in most of the observed disputes about object distribution, the playing children not only strived to protect, defend, and keep their play going, but also to enjoy, and continue enjoying their play the way they liked. In contrast, the absence of both fun and consequent positive attitudes made an activity boring and not play. In my study, the children refrained from engaging in activities they perceived as boring. Once an activity was evaluated as boring, they would quit it, not look to repeat it again, and search for a more interesting one. The children did sometimes feel bored in the context of ICT-based activities, but almost only when they were waiting and/or did not have a chance to enjoy self-initiation and self-governance of these activities. For example, as seen earlier, the children expressed their feelings of boredom in many ways such as leaving the activity and returning back after a while, complaining to the teacher, etc.

My study found that play needs to be enjoyable and fun, and not play is boring. Play cannot be boring and not play is never enjoyable and fun. Of course other elements are important (see

table 7 later). My findings do not fully tally with previous research on play (e.g., King, 1979; Robson, 1993; Wing, 1995) in which play and work were seen as on a continuum and work could sometimes be enjoyable and fun. The difference of emphasis perhaps comes about because of the context of the activity. I was looking at mostly free-play time while other researchers have looked more broadly at the classroom, including teacher-led activities.

6.4.3. Unfair

As seen earlier, the children voiced their concern for playing on an equal basis. This is congruent with research that explored nursery-aged children's moral and justice concerns (McGillicuddy-De Lisi et al., 1994; Wong, 2010). This research shows the prevailing preference and concern of nursery-aged children for fair play. Wong (2010: 275) found that young children frequently used justice-based moral rules to maintain equality in sharing and to preserve their personal rights in the ownership of play. This meant that not play captured the idea of being unable to play (i.e., the child was not playing because he or she could not access the resource). From the point of view of the playing children using the resources unfairly (i.e., not turn taking) the activity could still be classed as play, though play would become unsettled as the level of disturbance increased around them.

6.5. Summarising Play and Not-play

Table (7) shows the essential features of play and not play with ICT resources. This characterisation may be distinguished from previous research in that as seen earlier play is positively experienced. Second, play may involve more than two children and creates the phenomena of crowding and watching roles. These are not unique to ICT resources but appear almost always as a feature of them. Friends' presence was necessary both to provide emotional support to the child and to enjoy the activity, it was also a disturbing element that would

sometimes spoil the feelings of enjoyment of the activity. That is, there was a conflict between the children's preference to have their friends with them while playing, and their wishes to preserve their ownership (i.e., self-lead) of their play (i.e., playing in accordance with their preferences). This suggests that there was limited scope for co-operation among the children, since in some cases offering assistance by a friend or a child would be terminated as soon as the difficulty was solved. Put another way, the playing child would regain the control over the resource, stressing their role as the leader of the play. Therefore, sharing was based on collaboration in terms of turn-taking basis, conducive to the children defending their turn even against interferences from friends. Instances of providing help (i.e., prosocial behaviours) by a friend, while initially welcomed, were perceived as threatening to the playing child's preference to self-govern their play. The third point relates to their moral development. They showed a concern for playing on a fair basis, as discussed under the second play sub-theme.

Table 8: features of play with ICT from the children's perspectives

Features of play with ICT as defined by the participant children	Features of not play	Examples
Self-initiated	Initiated by others	Choosing a programme as against watching a programme chosen by others
Self-led	Led by others	Making decisions on the directions of the Bee-Bot, versus watching a child controlling the Bee-Bot
With a friend	Crowded	The child is taking a secondary role in the playing child's activity
Fair	Unfair	Play on equal basis
Attitude the activity is liked	Dislike the activity	Positive and enjoyable versus being uninterested in the activity
Fun	Boring	Experiencing happiness, alive, animated, versus feelings of frustrations and withdrawn

From the child's perspective play with ICT needed to contain elements of self-initiation, ownership, friendship, fairness, playfulness, and enjoyment.

6.6. Reflections on Theoretical Contribution

As we saw earlier, there are different ideas about what makes a theoretical contribution to research. Abend (2008) gives seven ideas of theory. The third of these is about shedding light on a social phenomenon by offering a new perspective and so 'making sense' of what is happening in a setting. This is of particular relevance to my study which is about making sense of digital play. As my study shows, digital play has five characteristics: ownership, fairness, friendship, enjoyment and gender (see chapter 5). This is a new perspective on digital play. It is noted that digital play is often taken for granted but my research shows that digital play is more complex and richer than often assumed.

It was noted in the literature review that debates about technology and play were often written from an adult perspective, and children themselves were under-represented. Hearing the voice of the children on digital play in my study has contributed to a fresh understanding. In particular, I was able to highlight similarities between digital play and traditional play (see pages 242-268). In this way, I was able to demystify debates about digital play. Of course, there are aspects of digital play which are new, but rather than being exotic, strange or alien, digital play lies in a tradition of play and how play has been conceptualised. If digital play can be understood as lying within a tradition, then practitioners might draw on existing long-established professional knowledge of play and start to extend their planning to foster a more productive type of play that these tools afford (Stephen and Plowman, 2014: Plowman, 2016). My study contributes to the growing literature on digital play (e.g., Arnott 2013; Edwards and Bird, 2015; Marsh et al., 2016; Plowman and Stephen, 2007) by relating play to new technology and pedagogical practices that may support learning (Yelland, 2011). Edwards (2013: 23) too argues that 'a post-industrial conceptualisation of play views the relationship between

traditional and convergent play as opportunities for children to create 'webs of meaning' that are personally relevant to their own lives.

Abend (2008) also suggests, in discussing different types of theoretical contribution, that ideas of explanation are strongly associated with theory. In Abend's 'theory2' (i.e., the second meaning of theory) there is a way of thinking about explanation which is less concerned with causality, and more concerned with how things 'fit together' more generally. In fact, one very good way of explaining how a social phenomenon and its parameters fit within the classroom is offered by ecological theory.

My findings can be considered at more than one level. At the macrosystem level, the cultural context of early-years education in the UK, policy documents and the National curriculum, as in other European countries, values play as the basis for children's development and learning (cf. Stephen, 2010). Children's activities with technology do not seem to coincide with educators' conceptions of play-based learning, and hence professionals tend to limit children's time at these activities (Edwards, 2013). Policy documents in the UK tend to consider use of technology as an outcome but not as an activity contributing to learning (Edwards, 2013: Plowman, 2016). One consequence of this is that technology is creating challenges for educators and parents in creating a balance between real and virtual worlds, both of which are 'relevant to the lives of young children and can support learning in structured and unstructured ways' (Yelland, 2011, 11). These challenges are particularly visible in the play-based environment of the nursery, where 'norms' of the curriculum often position play and technology as oppositional, alienating technology from young children's play environments (Edwards et al., 2016; Marsh, 2010). Another consequence is that there are few models and little guidance and training provided to teachers on how to integrate these tools in their planning

and provision for children. Technology has been undervalued in the setting, and its use is easy to take for granted in the face of the lack of coherent curriculum guidance.

Within the mesosystem, children live in a media rich environment at home, and they have access to a wider variety of technologies and digital media at home than they do at the nursery (e.g., Marsh, et al., 2005). This was seen in my study in their attitudes, knowledge and skills (i.e., children had a general background knowledge and a positive orientation to use technology) they brought to the nursery. This at times brought a tension between the extent of technology at home and also the type and what was available in the nursery. It is important to note the differentiated background of children. Some of them were more knowledgeable and used that knowledge to affirm their role and position as leaders of digital play, some were in the position of being much less able. The exosystems which should cover connections between the microsystem of the children, the professionals working with children, parents, schools and policy makers, and children's transition to schools, were underdeveloped, and again children and teachers were very much left to handle tools on their own. This is in line with other research (e.g., Aubrey and Dahl, 2008).

However, from an ecological perspective, the environment of children's technology-based experiences is not perceived as rigidly fixed but as a dynamic structure that allows for 'the evolving processes of interaction through which the behaviour of participants in the system is instigated, sustained, and developed' (Bronfenbrenner, 1979: 17). So instead of looking at technologies in young children's settings as determining their experiences, I have been looking at children who use technologies to shape their own experiences (Arnott, 2016; Klerfelt, 2004). In my study, the ecological microsystem of digital play has been conceptualised as including elements: agency, pedagogical, social and material issues.

In terms of *agency*, children are social actors who creatively produce and reproduce adult culture in their activities in order to solve issues related to their peer culture (Corsaro, 1997). By the nature of the limited availability of resources, children often negotiate their wishes and hence dynamically take on social status roles and adopt technological positons such as players, spectators, participants, etc. (Arnott, 2016). In my study, the children drew on many modes of agency in their attempts to influence their activities with technology and hence construct their play. Here, the three modes of agency that are identified in social cognitive theory (Bandura, 2001; 2006) are pertinent to my study. They are: personal agency, proxy agency, and collective agency. Personal agency refers to the individual child's use of their own agency power to influence their behaviours and environment (Bandura, 2006: 165). In my study, personal agency involved several strategies including:

- Initiating play with ICT: choosing to start the activity.
- Negotiating: attempting to persuade the opposing child to let them play by bargaining
- Extending: claiming that their turn did not finish yet.
- Helping: offering assistance when something when the playing child encountered a difficulty.
- Protecting: using a variety of verbal and physical ways to protect their own play (e.g., pushing, voicing their wish to play without interference, etc.).
- Ignoring: not answering other children's questions and requests for a specific content (e.g., a game, to watch a program).
- Leaving: walking away when feeling bored
- Sharing happy experiences: inviting other children to enjoy the activity that the playing child was enjoying

The second type of agency was proxy agency which showed the social mediation of the agentic capacity. In this form of agency, the child influences the more capable person to bring about desired outcomes in events that reside outside the child's direct control (ibid, 165). In my study, this form of agency appeared in the following strategies:

- Complaining: soliciting help and support from a powerful adult in order to realise their wishes.
- Asking for help: requesting assistance when something went wrong or a difficulty encountered.

The third type of agency was collective agency which appeared in the actions of a group of individuals in pursuing joined enterprise (ibid, 165). In my study, this was rare but appeared in the following strategy:

- Solidarity: girls blocking boys' access to the play activity.

As seen in the literature review, this finding (i.e., the participant children used their agency to construct their play experiences) resonates with the findings from other studies of young children's agency expression. For example, Markstrom and Hallden (2009) explored young children's agency strategies for managing the collective regulation and negotiating their participation in collective activities in two pre-schools located in two different areas of a Swedish town. They found that children, being members of a collective institution (i.e., a setting dominated by daily routines, scheduled activities, and prescribed projects), resorted to a set of strategic actions to achieve their personal autonomy and pursue their individual interests (ibid, 115-116). These strategies were silence, avoidance, negotiation, collaboration, and partial acceptance (ibid, 116). This idea that children use a variety of strategic actions to achieve their personal autonomy is not confined to technology context as Corsaro (2005) showed (see pages 102-104 in the literature review). Wood's (2014) study of free play used a

social cultural perspective to problematise children's agency. She situated children's choices within shifting power structures, identities and relationships. Of course, there is more to agency than being able to act in the way you choose as Wood clarifies.

As for the *pedagogical* aspect, the pedagogy of pre-school normally stresses learning through play so children are given extended periods of time to pursue their interests during free-play time, as was seen in this study. Research on technology in early childhood education has moved on from debating the appropriateness of technology in a play-based environment to discussing how to effectively explore how young children best learn to use technology through play (e.g., Bird and Edwards 2015). Research in this area has explored: young children's play with technologies (Marsh et al., 2016; Smirnova, 2011), how children learn to use technologies through play (e.g., Bird and Edwards, 2015), and its potential to enhance children's learning and development (e.g., Plowman et al. 2012). However, in practice, as seen earlier, children tend to be left alone and this was seen in my study.

From the point of view of the pre-school, practitioners as powerful agents in the setting make rules that children should adhere to in their play, including turn-taking, sharing, duration of the play by each individual child, no pushing, etc. Hence, there are some limitations on their actions and interactions imposed by the structure.

The *social* dimension of children's experiences with technology is represented in the social processes that take place once they start activities with technologies. These include friendship relations, power differences among children, technological positons, adult rules, and peer interactions. These social elements will influence how the children negotiate their roles and interactions in achieving their own goals. Some children for instance, tend to be assertive and argue while others follow a more diplomatic approach in pursuing their own agendas (cf. Arnott, 2016).

As for the *material* aspect, technology promotes interactivity that excites children, something they perceive as fun. Technology also influence children's interactions by offering them certain forms of participation such as spectator, leader (Ljung-Djärf, 2008). When conflict happens, normally children resort, or make reference, to the rules when negotiating their play wishes. Hence, technology does not determine their experiences but is regarded as only one element among other contextual elements that influence the development of these experiences.

In my study the microsystem became my focus because all of the activities took part in free time and appeared to be relatively unplanned and unstructured. The microsystem has been conceptualised in terms of agency, pedagogical, social and material, but this does not mean the wider systems are unimportant, because clearly there were wider influences on children's activities.

By focusing on exploring play in the natural context of the classroom, this study bridges a gap in early-years literature between play pedagogies and young children's experiences of digital technologies. Hence, my study responds to the 'contemporary situation in which children participate' and thus illuminates 'the evolving nature of cultural context over time' as children of this age have different knowledge and cultural practices from previous generations [and thus act their play] (Edwards, 2013a: 202-204). As Marsh (2017:51) argues '[O]ne function of play is to explore and respond to the social and cultural contexts that surround players'. Hence, my study by adopting the ecological framework as discussed above and by following the methodology of ethnography as was discussed attempts to re-contextualise children's play with digital technology as they interact in these activities from their own perspectives (Marsh, 2017).

6.7. Summary

Technological tools and their replica items have 'meaning only when children play with them' (Mergen, 1992: 106). The meaning of digital play has been illuminated through the eyes of

these young children. ‘Webs of meaning’ of digital play to children included internal and external qualities such as ownership, fairness, friendship, feelings of fun, and gender. Through exercising influence on ICT-based activities, and by drawing on technological positions and social roles, the children creatively transformed their ICT-based activities into play that was under their control, and preserved time and space to play.

By considering play from the child’s perspective, the present thesis has ventured to uncover how play was influenced by the new technology. Its influence on play was explored by considering how the children defined play, reviewing literature on object dispute, friendship, psychology, and moral development. Some crucial points were drawn, including the influence of technological play on friendship, moral judgments, and attitudes toward the technological tools, as discussed earlier. Therefore, my study highlights similarities between digital and traditional play.

There is still a controversy about ICT and play and a preference for traditional free play. Play with technology is viewed mainly as passive in comparison to the traditional play. However, the present thesis does not reflect this thinking about play with technology. The children themselves did not like to be passive watchers or bystanders while another child was playing. Being in the position of a mere observer was not considered as play by the young children in my study. Hence, the findings of the study complement those of Aubrey and Dahl (2014) that early-years teachers viewed ICT positively in their educational practice in the classroom. That is, taking the child’s perception on what constitutes play, along with the early childhood teacher’s positive attitude, may enhance technology integration in the early childhood pedagogy and curriculum.

Finally, I tried to locate digital play in wider contexts that exert direct and indirect influences on children’s activities in the nursery, including digital play. I framed this discussion by

drawing on the ecological perspectives by Bronfenbrenner (1979). My study was focused on the microsystem of digital play as it explored how children construct digital play and hence contributed to the conditions of their play (Hedegaard, 2012). It was noted that digital play functioned in a wider system.

7. Chapter Seven: Conclusion

> We have sought out the subjective computer. Computers don't just do things for us, they do things to us, including our ways of thinking about ourselves and other people. (Turkle, 1996: 26)

7.1 Introduction

Childhood education and development is an ever-evolving area of study. In the fields of developmental psychology and sociology of childhood, our thinking has moved away from considering children as recipients of adult socialisation, towards a greater realisation of their abilities as active operators and constructors of their experiences through a reciprocal relationship with the social environment(s) (see discussion of Bruner and Haste, 1987; Prout and James, 1997; 2015; Woodhead and Faullkner, 2008). This stance is presented throughout the thesis (see chapter 3 in particular). This study contributes to our increasing understanding of early childhood education as an active process, and provides a useful entry point to the exploration of the child's perspectives on the nature of the digital play.

In this final chapter of the thesis, I will provide an overview of the thesis: examine the contribution of the research to knowledge; and consider the implications for future research and practice.

7.2 Overview of the Thesis

Chapter 1 introduced the thesis and presented a guide to the chapters that followed. Chapter 2 considered the relevant literature on early childhood education and technology, and led to the development of the main research question in the study. This concerned nursery-aged children's perceptions of their experiences with new technology. This was an open-ended question, and was intended to act as a flexible guide to lead me to capture children's subjective experiences with new technology in a natural setting.

Chapter 3 explored the methods used in carrying out this inquiry. These methods were innovative but grounded in the ethnographic tradition. This chapter also explored my role in the fieldwork, and considered the ethical implications for carrying out research with child participants. This chapter also explored the design and the choices of case study settings in which the fieldwork took place. It discussed the sample, and the context of the nursery settings.

Chapter 4 discussed the analytical framework for data analysis. Data were entered into NVivo 10 program, and TA was used to explore the patterns of meaning in the data set.

Chapter 5 presented the findings, and showed that children perceived as play with technology to ownership, fairness, friendship, enjoyment and gender preferences.

Chapter 6 discussed these findings in relation to relevant research studies in the field of early childhood, and explored in more depth issues related to children's friendship preferences, moral development, conflicts and attitudes.

This concluding chapter considers possible future directions for research in the field of technology in early childhood education, and recommendations for practice in this field. Looking back at the thesis, the reader can see that this was a sustained examination of young children's perceptions of their experiences with new technology.

7.3 Contribution to Knowledge

7.3.1 My Underlying Thesis

My underlying thesis is that there is a phenomenon called digital play characterised by ownership, friendship, fairness, fun and gender. This phenomenon is created by children within settings in which there is often little intervention but is nonetheless framed by a wider ecological environment. As seen in chapter 6, my theoretical contribution ties in with Abend's

(2008) ‘theory2’ and ‘theory3’. Theory3 is about shedding light on a social phenomenon by offering a new perspective and so ‘making sense’ of what is happening in a setting, and my study is about making sense of the phenomenon of digital play. As my study shows, digital play has five characteristics: ownership, fairness, friendship, fun and gender (see chapter 6). Digital play is more complex and richer than often assumed. It can be considered new in respect to the objects being used and the opportunities these objects provide. However, digital play should also be understood as lying within a tradition of how we think of play and how play has been conceptualised. Meanwhile, Abend’s ‘theory2’ is about explanation, but explanation which is less concerned with causality and more concerned with how things ‘fit together’ more generally. Here, I explain digital play as a social phenomenon in an ecological system in which the macro and meso influences were underdeveloped.

7.3.2 Increased Understanding of the Nature of Digital Play

My study develops our understanding of digital play. Firstly, this study discovered that the children tended to perceive their own ICT-based experiences as play or not play. Activities were play experiences under five circumstances outlined above (and see chapter 6). The children used many verbal and nonverbal ‘meta-communication signals’ to translate their wishes and intentions into play actions (Bateson, 1976: 119, see chapter 5 section 5.2.). When they felt the situation was not fair, they resorted to verbal meta-communication signals such as voicing their discomfort at being unable to play, complaining to the practitioner, requesting to have a turn, and describing the activity as boring. The children defended their own play by reminding others that they were leading the play. They also used strategies to access play (e.g., watching the playing child, getting closer, grabbing the play object, and placing their hand on it, see chapter 5). As for gender, this influenced the direction of activity, as the children tended

to choose content that corresponded to more stereotypical gendered resources particularly under circumstances of having to choose for the whole class.

Secondly, the study showed that play had four dimensions: agency, social, emotional and moral (see chapter 6). Children had an intrinsic motivation to play with the resources and to express agency. They believed that new technology should be used for play, preferring to lead play (see chapter 6). They desired to exert influence on their activities in accordance with their preferences and wishes.

With respect to the emotional dimension, the children had positive attitudes towards play, in that they liked it, enjoyed it and felt happy about it. They justified their involvement in this play on the basis of the sheer 'fun' they derived from these activities.

In terms of the social scope of this play, this appeared in the children's friendship and gender preferences. They liked to play with their friends, and being with their friends made them happy. However, there was a tension, in that while the children expressed a clear desire to be in the company of these friends, the presence of friends was a source of concern as they did not want their friends to intervene in the conduct of their play (see section 5.2.3. page 208). In particular, the nature of new technology often seemed to suggest use by a sole user, and hence offered only a limited scope for co-operation. The context of play (see findings chapter) further reduced opportunities to play together in particular the lack of practitioner intervention meant children had to negotiate their activity. They sometimes did this successfully by bargaining and offering special social status (e.g., 'I will be your best friend', 'I will invite you to my party') (see section 5.2.3. page 208), but in other situations, their negotiations were not successful and could result in quitting play, suspending friendship relations temporarily and even pushing away and crying. Children of both genders expressed agency preferences to self-lead their play,

but a gender influence was observed in relation to choosing programmes in accordance to their genders (see section 5.2.5. page 231).

In terms of the moral aspect of this play, children were concerned to conduct their play on an equal turn taking basis. They reasoned that it was not fair when they were not able to play, and as a result they felt sad. This aspect of their play demonstrated a moral reasoning behind their actions. While some might view the children's preference to self-lead their play as an indication of their egocentric thinking, the children extended this right to other children but not a right to play too long.

7.3.3 Contribution to Understanding Research Methods

This study was grounded in the ethnographic case study tradition. The case study belongs to a tradition of qualitative case inquiry (see Stake, 2000). The case study settings were non-maintained settings. Ethnography provided the researcher with a means to enter the children's culture through participant observation. Methods needed to be adapted for researching with children. While ethnographic observation can contribute to a wealth of information about children's activities, and the context and culture in which those activities take place, it does not in itself access subjects' thinking and reasons for their actions. The researcher needed to talk with the children in order to uncover the thinking behind their actions. In this study, I adapted two methods (drawings and taking pictures of and by the children) in conversations with the children. These research activities helped to establish rapport, as they were grounded in the experiences of these children, valuing their own opinions (Johnston, 2009: 172; see also chapter 3). In particular, they helped me to create a space within which the children enjoyed sharing their thoughts with me. These methods were developed through my reflective practice in the field, and were found to be particularly appropriate. I consulted with the children about their preferred ways of expressing themselves, about the timing of the conversation and its place,

and whether they liked to be alone or with a friend (see chapter 3). Thus, the research relied heavily on ethnographic conversations, and provided a case study not just of the ICT use but of ethnographic conversation as a method. A strength of my methodological approach was its use of more than one method and the opportunity for triangulation. As discussed in chapter 3, triangulation included triangulation of research methods, of settings, and of participants. This enhanced the trustworthiness of the research.

The research contributes further to an on-going debate about considerations of imbalances in power, knowledge and competence between the adult researcher and the child participant (see chapter 3). These create ethical and practical responsibilities for the researcher. In terms of my research, I found that ethical issues could not be dealt with once and for all. Instead, I needed to negotiate ethical considerations throughout my research fieldwork. In the dynamic and busy environments of the nurseries, I did not pretend to be a child, nor was it possible for me to take the normal adult role. The purpose of my being there in the field dictated the conduct of my research. I needed to negotiate my research role and practice with both the practitioners and the children. I explained to the practitioners my research plan and answered their inquiries about the conduct of my research. This in turn helped me to get to know the children once their parents and the settings consented for their participation, participating in their play when possible and leaving when I felt unwanted. Gradually, I became a play partner, receiving play invitations and help requests. Research activities were opportunistic and conducted at the children's choice and convenience.

This was not a completely new approach, in that such ethnography has been carried before, but it adds to the literature in that I took the debate about the new sociology of childhood seriously. This was not just a method but a position in which I strove to understand and know the child

by spending extended time in the classroom, and did everything reasonable to reduce the asymmetry in power.

7.4 Limitations and Recommendations for Future Research and Practice

Some directions for future research are suggested by the work presented in this thesis. Of particular interest, six limitations are discussed. These are: the scale of the study; the cross-case analysis; gender; the classroom focus; the forms of technology; and the micro focus.

One of the limitations of this study was firstly that it was conducted on a small-scale in non-maintained settings. This makes it difficult to generalise, particularly to maintained settings in which there is some research evidence to suggest that these are better equipped and staff are better trained. Larger studies might be undertaken by others in a wider mix of settings.

An obvious future direction for research is to explore a more purposeful selection of settings, for example, two with high levels of provision of technology, two with medium levels, and two with low levels. This could help to address the influence of access on play, and would provide a more extensive evidence base.

Secondly, a limitation was that the study presented the views of the children in three settings which had limited technologies and for that matter limited strategies for intervention. There is some evidence to suggest that these three settings may have been typical of other non-maintained nurseries at the time when the study was carried out. For example, Marsh et al. (2005) showed that non-maintained settings were less equipped than maintained settings. W setting differed in terms of its intake of international children, B setting was less well-equipped, and S setting was better equipped. A consequence of my cross case approach was that it led to a focus on what was common in children's experiences rather than difference. Of course, I did not ignore differences and each example of activity was attributed to a particular setting and,

where significant, the particular feature of a setting was brought out. Other researchers might like to carry out purposively selected single case studies in the future or take an explicitly comparative approach.

Thirdly, a limitation was that while the gender dimension was not neglected in the study, it was under-explored. A further study might look systematically at gender in terms of friendship relations, enjoyment, and agency expression. For instance, are girls more successful in negotiating their play wishes than boys? Do boys initiate more conflicts than girls? I did not find this in my study, but this would be an interesting area to explore.

Fourthly, a limitation of this study was that it was confined to experiences with technology in the classroom. Future research could explore young children's perceptions of their technology experiences in the playground, where children not only use a variety of technological tools in their imaginative play but also role play stereotypical characters such as superheroes and princesses. In fact, during the study, I did go outside the classroom, for example, trips to a forest school and the sports centre, but did not have the time and space to develop this aspect.

Fifthly, this study has a further limitation in that it explored children's experiences with quite a limited range of ICT resources which were the ones available and in some ways typical of the classrooms at the time. However, technology does not stand still. Future research might explore children's experiences with a range of technologies such as iPads, smart phones, new forms of digital toys, etc. For example, researchers might want to examine the idea of mobility in more detail as these resources become small, and children can use them in different play areas. As research examines these new devices, it might get a better sense of which devices seems to have the most potential to support play.

Finally, future researchers may also want to develop a stronger ecological perspective on play. I focused on the microsystem, children and their direct participation with technology, in this

study because I was interested in children's subjective experiences of technology but also because I was aware that children experienced technology in a largely uncontrolled environment. As discussed throughout the thesis, in this immediate environment, the children's interactions were centred on their agency preferences, social relationships, individual rights, gender, and attitudes toward the technology activity. Ownership was the key defining feature of play. Wider meso and macro influences were there in the data and were noted. For example, I explained that one child had his own laptop, and he was very passionate about technology based on his experiences at home. His 'home-grown' skills gave him a higher status in the nursery as he could offer help to peers who struggled. Another example at the meso-level was that a parent who helped equip a nursery setting with an iPad. However, other researchers may want to deal with these connections between settings more systematically. At a macro level, researchers may look at the influence of policies and institutional practices, this is particularly significant given the recurring commitment of UK governments to equip educational settings with computers on the basis of the view that these are important for children's futures.

7.5 Policy and Practice

This study was not about finding out whether play with new technology was better than 'traditional' toys and games. Nor was it specifically designed to result in a new pedagogical framework. Rather, as an ethnography, it was about explaining what was happening, and less about what should happen or what could be tailored in better ways. However, I spent a substantial period of time at nurseries (i.e., almost a year) observing and reporting on technology use and its context, and it would be remiss not to make some tentative suggestions about the use of technology.

Before presenting suggestions, it is worth reminding the reader that as seen in the literature review ICT is an everyday activity (Lindahl and Folkesson, 2012: 1729). While opinions on

whether to introduce new technology is contested (see chapter 2), in practice children are using it any way and for a variety of purposes such as watching programmes, viewing videos, playing games, etc. (e.g., Marsh et al., 2005; Karuppiah, 2015). The focus has shifted from whether technology has a negative and/or positive influence, to how it can be best used to support and foster children's learning and development (Gialamas and Nikolopoulou, 2010: 333). Hence, the way in which early childhood educators use ICT with young children is of more significance than its mere use (Haugland, 2000a; Haugland and Ruiz, 2002; Sheingold, 1987).

From my own experience, I have seen that young children enjoyed playing with digital devices. Some were designed for children, and seemed to have a special fit with children's interests. Some appeared as part of children's everyday experience of the world, and of their parents. Using digital devices gives children an opportunity to develop the skills of using technology and e-literacy, and to do things that they might otherwise be unable to do. Crucially, technology appears to create opportunities for varied and stimulating play, and opportunities to transfer the experience of digital play from one context to another (see section 5.2.3. page 208). For instance, the children watched Peter Rabbit and then went on to role playing Peter Rabbit in the playground. In their fantasy play, the children also made pretend phone calls in an emergency situation, and pretended to handle clients' orders in a restaurant. Furthermore, while conflicts occurring in digital play activities were frustrating, these did trigger opportunities to learn to manage and solve problems arising from the scarcity of the resources (see findings chapter).

I would not suggest that technological resources are 'better' than non-technological resources. In fact, in the course of my time in the nursery, I saw many activities that had nothing to do with technology. These were neither better nor worse, but they were different. However, if we want to introduce technology into a nursery, the big challenge is to exploit ICT experiences in

better ways. As discussed in the literature review (see section 2.2.2.page 59), ICT can be appropriated in different ways, including creative use of it as a learning tool, developing cultural literacy, through to keeping children busy, documenting and communicating children's activities, and as a 'babysitter' or a 'display tool' (Ljung-Djärf, 2008; Masoumi, 2015). What characterises this set of uses is that they are based on an adult-perspective, and thus, may not necessarily capture what young children wish to use it for. Further, the use of the new technology in pre-school settings is characterised by reluctance on the part of educators to embed them in their practice (Lindahl and Folkesson, 2012: 1728). Overall, there is a consistent problem of appropriate pedagogical support for technology. I saw few teacher-led situations. I repeatedly saw practitioners being unwilling to influence children's play with technology. At the macro level, there is a role for policy-makers to offer more specific and explicit guidance and support to educators. In turn, this may facilitate a shift at a micro-level from one in which children are left alone with technology to a more interventionist pedagogy. Practitioners want to have access to training that equips them to use technology effectively in the classroom (e.g., Aubrey and Dahl, 2014; Fenty and Anderson, 2014; Marsh et al., 2005). They might benefit from developing their knowledge and competence with the new technology, so that they can use it in ways that support children's learning (Fenty and Anderson, 2014: 115).

In terms of pedagogy, practitioners need to consider how to support children's play and how to help to avoid conflicts. Of course, conflicts might have a developmental role as instances of conflict created problem-solving demands and negotiation (e.g., Pálmadóttir and Johansson, 2015; see also chapter 6), but most of the children were not happy about the continuous occurrence of conflicts in their play with technology. Based on this, I would suggest that the practitioners model conflict resolution to young children. Their pedagogical practice might benefit from an explicit emphasis on democratic values, in line with the curriculum guidelines for pre-school in England, EYFS (DfE, 2014). Thus, it is the educator's responsibility to reflect

on children's conflicts and develop pedagogical practices that support children's development and learning in this regard.

There is a need for more understanding of young children's learning with technology in an environment that revolves around play (Edwards and Bird, 2015; Stephen and Plowman, 2014). Practitioners might be encouraged to observe and assess children's play and learning with these technologies. Bird and Edwards (2015) introduced a framework, 'the Digital Play Framework', in order to help early educators in this regard. Based on the mediation idea of Vygotsky's socio-cultural theory (1997) and Hutt's concepts of epistemic and ludic play (1966), the framework shows the range of children's play behaviours as they move from exploring unfamiliar objects (i.e., epistemic activity) through to mastering the object (i.e., ludic activity) and hence proceeding to play (e.g., pretend play) with it (Edwards and Bird, 2015). However, the framework did not fully explore children's perspectives in terms of their play with technology, and did not recognise that not all digital activities were perceived as play. As an alternative framework, table (8) provides a means by which practitioners as well as parents can engage in observing, exploring and describing children's learning through play. It might serve as an entry point to understanding the children's feelings, meanings, and concerns in their ICT-based activities.

Based on the framework, practitioners and parents may assess children's digital play along five dimensions, and then ask a series of questions as to what is happening or has happened. These suggested questions are designed to help practitioners and parents to assess the consequences of the activity. This will help people identify strengths in play practice, but also problems. For example, when a child shows signs of distress, practitioners and parents may attempt to understand what is going on and may intervene accordingly. However, what should be done with these matters is a question of context and management in the nursery. A third column

suggests some suggested responses, although all responses will need to be context dependent. Practitioners and parents may use the framework to understand children's perspectives, and hence, may mediate children's digital play in ways that conform to children's perspectives.

Table 9: framework for practitioners to support digital play

Play element	Suggested Questions	Monitoring
1. Ownership	Does the child initiate the play? Does the child self-lead the activity? Does the child show signs of distress when others intervene in their play?	Observation: Yes/No Observation: Yes/No Observation: Yes/No
2. Fairness	Who has used it? How long? Do others have the opportunity to use it? How can sharing be developed?	Observation: Name of the child Observation: Checking time limit Observation: Yes/No Intervening: Each child has an opportunity to self-lead their play
3. Friendship	Whom does the child choose to play with? Do some arguments rise between them? How do they handle these arguments? How does the play object influence their interaction?	Observation: A friend or a playmate Observation: Yes/No Observation: e.g., complaining, negotiating, snatching, bargaining, etc. Observation and comparison with other instances of play

4. Enjoyment	Are they enjoying it? Why? Does enjoyment have cognitive aspects? What are the signs of enjoyment?	Observation and Asking: Yes/No Asking: fun/boring Asking questions about learning e.g., skills, attitude, voluntary initiation (motivation), feelings, etc. Observation: happy facial signs, laughing, dancing, etc.
5. Gender	Do children of both genders engage in the activity? What content do they choose? Does their gender influence their social interaction? If so, how?	Observation: Yes/No Observation: e.g., princesses, superheroes. Observation: Do boys have a stronger wish to engage in ICT-based activities, control and self-determine their content than girls? Observation: Do girls like to share more than boys, for example?
6. Learning	What are children learning? Are there opportunities to intervene? Are there opportunities to help children transfer their learning? Are there opportunities to help children reflect on learning?	Observation: e.g., specific skills, dispositions and values. Observation and intervening: e.g., encouraging children to use their experiences in new activities. Intervening and asking questions: e.g., why do you think children would become upset when some children do not, for example, share?

The macro level is not just about policy, but also is about cultural assumptions. The value of listening to young children's voices on their experiences with technology is that we do not have to be alarmed by technology, we do not need to take up some of the very optimistic / pessimistic positions outlined in the literature review. When we look at what the children do with technology, we can see continuities with past perspectives on play. This suggests that children are not in the grip of technology but their use of technology is malleable, they can exercise agency and practitioners and parents can help them direct this agency.

7.6. Final Thought

I have spent four years looking at technology in early childhood education. It has been a personal journey for me, in which I ended up searching and developing interests into areas I did not expect. I became fascinated with children's interactions in technology-based activities. I am very grateful to the practitioners and above all to the children for making this possible. My fieldwork experience helped me learn how young children constructed their play with technology, but:

> There is still so much that we do not know [about children] and so much we still need to learn. For this reason, it is essential that all of us who work with children, and who study their development, maintain a strong sense of critical reflection and openness in how we view child development and education as well as our own professional practice. (Gray and MacBlain, 2012: 12)

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Appendices

APPENDIX 1: ETHICAL APPROVAL FORM

Application for Ethical Approval for Research Degrees (MA by research, MPHIL/PhD, EdD)

Name of student	MA By research	EdD	PhD
Hani Almehrz			✓

Project title

Listening to nursery-aged children's voices in relation to their learning with ICT

Supervisors: Prof. D. Wray and Dr. M. Hammond

Funding Body (if relevant)

Please ensure you have read the Guidance for the Ethical Conduct of Research available in the handbook.

Methodology

Please outline the methodology e.g. observation, individual interviews, focus groups, group testing etc.

The general methodological framework is ethnography and includes: participant observation, child conferencing, informal conversations with children, taking pictures by children, and puppet show.

Participants

Please specify all participants in the research including ages of children and young people where appropriate. Also specify if any participants are vulnerable e.g. children; as a result of learning disability.

The participants include children at a nursery and some of their parents. In particular I will be working in a classroom of 22 children and I will be playing with them, observing their normal activities, holding informal conversations with them when it is appropriate, and providing them with cameras to document their experiences. The main point of doing home visits is that it will help me to learn about these children's ICT activities at home. My participation is being overseen by nursery staff. Young are both competent and vulnerable and I have taken all necessary steps to reflect this in my research. For example, I have participated in their play at their terms, and also tried to prevent any possible harm to them.

Respect for participants' rights and dignity

How will the fundamental rights and dignity of participants be respected, e.g. confidentiality, respect of cultural and religious values?

All parents of children and the practitioners were sent consent forms explaining the nature of my study and the different activities as explained above.

I also obtained CRB through Warwick University which enables me to work with these children.

These activities were first discussed with my supervisors and then with the head-teacher of the nursery and the practitioners in order to insure that all my research activities are appropriate and respectful to the children, their parents and the practitioners culturally, socially, and developmentally.

From the start it was stressed that any data obtained would not be shared with any third party, and that it will only be used for research purposes. The practitioners in the setting and my supervisors are kept updated in relation to the status of using these data. Further, all my research activities are discussed with and take place in co-operation with the practitioners so that they are aware of what is going and their normal activities are not disturbed.

Before any recording take place children were asked for their permission to record in the case of informal conversations. In some activities were children were completely engaged in an activity, a permission was obtained from the practitioner in order to prevent any disturbance to the children doing that activity.

Privacy and confidentiality

How will confidentiality be assured? Please address all aspects of research including protection of data records, thesis, reports/papers that might arise from the study.

My research includes taking pictures of or by children. All research participants especially children were made aware of this aspect of my research. And permission for the taking picture activities has been obtained from their parents and the nursery staff as explained in the informed consent forms that has been distributed to all involved parties.

Confidentiality of the research participants and the data obtained from them is assured by making it clear from the very beginning of my research that any form of data gathered, visual and verbal, will not be shared with any third party. It will only be used for research purposes.

Consent - will prior informed consent be obtained?

- from participants? Yes from others? Yes

- explain how this will be obtained.

All parents, practitioners, the head-teacher were sent informed consent forms explaining the nature of my research and the different activities that their children would do if their parents were to accept their participation in my research. Subsequently, the criteria for selecting children to take part in my research would be based on their parents' agreement to do so. Moreover, before doing any research activity I ask children if they are happy to do it, in this way children were freely to decide whether to take part, to delay it till it is suitable for them, to choose where they want the activity to take place, and to terminate it.

If prior informed consent is not to be obtained, give reason: X

- will participants be explicitly informed of the student's status? Yes

Competence

How will you ensure that all methods used are undertaken with the necessary competence?

It was decisive for my research that I became familiar with the children and the nursery. For the first two month of being there, I was someone who played with the children as they have been told by the practitioners. After that I started discussing my research activities with the children and the staff and I was able to design research activities which were suitable for children's needs and abilities. For example, these activities were differentiated and were always discussed with staff. Participation has been and will be voluntarily.

I constantly do as comprehensive reading about doing research, and research methods, with young children as I can so that new insights from new research in this area along with my experience and familiarity in the setting can be combined together to create methods that play to the children's strengths.

Protection of participants

How will participants' safety and well-being be safeguarded?

A CRB has been obtained. This certificate enables its holder to work with children. I will ensure that none of the research I carry out will harm children. As an adult researcher, I have come to the nursery to do research with children by playing with them and have not taken an authority role. However, sometimes I have to intervene to prevent a child from doing harm to the other children, especially when two children get into a serious argument about a toy, for instance.

Child protection

Will a DBS (Disclosure and Barring Service formerly CRB) check be needed?

Yes (If yes, please attach a copy.)

Addressing dilemmas

Even well planned research can produce ethical dilemmas. How will you address any ethical dilemmas that may arise in your research?

Research ethical dilemmas cannot be predicted. The researcher needs to be flexible enough to deal with them as they arise. This is going to be done by discussing whatever dilemma happens with the practitioner and the head-teacher so that an appropriate action will be taken. I have been trying during my research period to prevent any disturbance to the normal activities in the setting.

Misuse of research

How will you seek to ensure that the research and the evidence resulting from it are not misused?
This will be avoided by working closely with the children, parents, practitioners and my supervisors. They will be kept updated about the data usage and the findings of research so that they can voice their concerns. The data will only be used for research purposes.

Support for research participants

What action is proposed if sensitive issues are raised or a participant becomes upset?

I have been playing with children as a friend and participated in children's play only if they invited me to do so. No sensitive issues have been raised so far. If this were to happen, I would first inform the practitioners and the head-teacher so that they can deal with it the way they like as they have the expertise to handle these issues.

Integrity

How will you ensure that your research and its reporting are honest, fair and respectful to others?

As explained above, the head-teacher as well as my supervisors will read through my research report along with evidence gathered from the fieldwork. I also discuss my research data with the head-teacher or practitioners depending on their availability so that any discrepancy between reality and my report can be addressed.

Another aspect of ensuring the integrity of my data is letting research data to speak for itself by providing quotes from the research data.

What agreement has been made for the attribution of authorship by yourself and your supervisor(s) of any reports or publications?

None so far but this will be discussed with both of my supervisors.

Other issues?

Please specify other issues not discussed above, if any, and how you will address them.

Signed

Research student H. Almehrz Date 10/07/2013

Supervisor Michael Hammond Date 10/07/2013

Action

Please submit to the Research Office (Louisa Hopkins, room WE132)

Action taken

✓ Approved

Approved with modification or conditions — see below

Action deferred. Please supply additional information or clarification — see below

Name Michael HAMMOND Date 10/07/2013

Signature Michael H

Notes of Action

APPENDIX 2: CONSENT FORM

Dear Sir/Madam,

My name is **Hani Almehrz**, and I am currently a second-year PhD student at Warwick University, Institute of Education. I am co-supervised by Prof David Wray and Dr. Michael Hammond. My area of research relates to early years education and the use of ICT by nursery-aged children. I have a CRB certificate obtained through Warwick University which permits me to work with these young learners in early years settings.

The **aim of my research is** to explore the perceptions of nursery-aged children of ICT in the nursery. This research is mainly child-centred and I will be asking the children to share their ICT experiences, through a variety of activities, including:

1- Observation of children's use of ICT
2- Drawing and taking photos of and/or by children
3- Audio/video recording of children's play with ICT
4- I would also welcome the opportunity to talk to parents about their children's ICT activities and interests in the home

I am outlining the nature of my research in order to ask for your informed consent for your child to take part. **Your child's participation would be totally voluntary. He/she will not be named anywhere in my writing about this research, nor would his/her photographic image be shared with any third parties**. Your child will also have complete freedom not to participate in the research if and when he/she so desired. I will be more than happy to answer any questions about my research at any time

If you are willing for your child to take part in this research, I would be most grateful if you could sign and return to me (via nursery) the form below.

I (name of the parent)……agree to my child (name of

the child) ……..participating in my research.

Signature and Date of signing ----------

APPENDIX 3: CHARACTERISTICS OF THE SAMPLE

3.1 Participant Children in B Setting

Number	Pseudonym	Gender	Ethnicity
1	Jason	M	White British
2	Travis	M	White British
3	Scott	M	White British
4	Erin	F	White British
5	Elena	F	White British
6	Elisa	F	White British
7	Justin	M	White British
8	Becky	F	White British
9	Lee	F	British Asian
10	Angel	M	White British
11	Alan	M	White British
12	Steve	M	White British
13	Hope	F	White British
14	Leah	F	White British
15	Joseph	M	White British
16	Henry	M	White British
17	Walter	M	White British
18	Reese	M	White British
19	Neil	M	White British

3.2 Participant Children in S Setting

Number	Pseudonym	Gender	Ethnicity
1	Colin	M	White British
2	Deborah	F	British Asian
3	Erica	F	White British
4	Bella	F	White British
5	Arthur	M	British Asian
8	Louie	M	White British
9	Brad	M	White British
10	John	M	White British
11	Ellen	F	White British
12	Peter	M	White British
13	Ross	M	White British
14	Gavin	M	White British
15	Tiffany	F	White British
16	Ken	M	White British
17	Finn	M	White British
18	Robin	M	Black British African
19	Bill	M	White British

3.3 Participant Children in W Setting

Number	Pseudonym	Gender	Ethnicity
1	Yang	M	White Chinese
2	Chen	M	White Chinese
3	Alice	F	White British
4	Chris	M	White British
5	Molly	F	White British
6	Ali	M	British Asian
7	Rich	M	White British
8	Leo	M	White German
9	Gloria	F	White British
10	Dale	M	White British
11	Tylor	M	White British
12	Tina	F	White British
13	Lora	F	White British
14	Lydia	F	White British
15	Youn	F	White Korean
16	Hyun	M	White Korean
17	Donna	F	Black British African
18	Dagmar	F	White Turkish
19	Simon	M	British Asian
20	Yejun	M	White Korean
21	David	M	White British
22	Alex	M	White British
23	Karen	F	White British
24	Siam	M	White British
25	Kate	F	White British
26	Mark	M	White British
27	Aiden	M	White British

APPENDIX 4: TALKS WITH CHILDREN

4.1 Talks with Children at B Setting

Number	Date	Child's name
1	01/12/2013	Angel
2	01/12/2013	Jason
3	17/03/2014	Becky
4	01/12/2013	Elena
5	01/12/2013	Henry
6	01/12/2013	Hope
7	18/11/2013	Leah
8	18/11/2013	Reese
9	01/12/2013	Steve
10	04/12/2013	Travis
11	13/01/2013	Walter
12	06/02/2014	Alan
13	13/01/2014	Angel
14	13/01/2014	Elena
15	13/01/2014	Henry
16	08/04/2014	Jason
17	17/03/2014	Jason
18	13/01/2014	Joseph
19	14/01/2014	Justin
20	17/03/2014	Leah
21	14/01/2014	Lee
22	17/03/2014	Nil
23	14/01/2014	Oley

4.2 Talks with Children at S Setting

Number	Date	Child's name
1	04/04/2014	Louie
2	04/04/2014	Arthur
3	04/04/2014	Colin
4	04/04/2014	Paul
5	26/03/2014	Daisy
6	11/03/2013	Ross
7	11/03/2013	Arthur
8	10/03/2014	Arthur
9	11/03/2013	Peter
10	11/03/2013	Deborah
11	11/03/2013	Erica
12	30/03/2014	Deborah
13	28/03/2014	Ross
14	13/12/2013	Peter
15	02/12/2013	Deborah
16	10/12/2013	Colin
17	07/12/2013	Deborah
18	12/12/2013	Arthur
19	17/03/2014	Deborah
20	04/04/20 14	Arthur
21	40/40/2014	Colin
22	08/04/2014	John
23	04/04/2014	Louie
24	04/04/2014	Paul
25	14/02/2014	Louie

4.3 Talks with Children at W Setting

Number	Date	Child's name
1	24/07/2013	Chen and Dale
2	20/07/2013	Alex
3	Alice 27/07/2013	Alice
4	31/07/2013	Alice and Chris
5	29/05/2013	Alice and Gloria
6	29/05/2013	Chen and Ali
7	15/08/2013	Chen
8	22/07/2013	Chen
9	06/08/2013	Ali and Chen
10	31/07/2013	Chen and Ali
11	05/08/2013	Chen and Ali
12	14/08/2013	Chris
13	23/07/2013	Chris and Chen
14	07/08/2013	Chris and Gloria
15	07/08/2013	Dagmar
16	20/06/2013	Dale
17	20/06/2013	David
18	14/05/2013	David
19	19/07/2013	Donna
20	16/05/2013	Gloria
21	01/08/2013	Yang
22	17/05/2013	Yang and Chen
23	31/07/2013	Yang, Chen and Ali
24	14/08/2013	Karen
25	05/08/2013	Karen
26	15/08/2013	Kate
27	06/08/2013	Leo
28	31/05/2013	Leo
29	31/05/2013	Lora
30	15/05/2013	Lora and Gloria
31	14/08/2013	Lora and Gloria
32	01/08/2013	Lydia
33	13/08/2013	Lydia and Kate
34	06/08/2013	Marx
35	06/08/2013	Molly
36	30/05/2013	Molly and Alice

37	05/08/2013	Molly and Youn
38	14/05/2013	Lydia
39	13/05/2013	Kate and Tylor
40	22/07/2013	Yejun
41	13/07/2013	Rich
42	22/07/2013	Hyun
43	28/05/2013	Siam
44	26/07/2013	Simon
45	12/08/2013	Ali
46	15/08/2013	Simon
47	14/08/2013	Chris and Simon
48	13/08/2013	Ali and Chen
49	15/08/2013	Ali and David
50	14/08/2013	Tina

APPENDIX 5: OBSERVATIONS

5.1 Observations at S Settings

Number	Date	Context
1	06/11/2013	Watch stories
2	07/11/2013	Watching time/free play at the computer
3	21/11/2013	Watching Snowman
4	24/11/2013	Watching time
5	02/12/2013	Children playing games
6	10/12/2013	Play cbeebies
7	12/12/2013	Pay at the computer
8	12/12/2013	Play games
9	13/12/13	Ugly Duckling on the iPad
10	13/12/13	Watching time
11	16/12/2013	Watching time
12	18/12/2013	Free play at the computer
13	04/02 14	watching Papa Pig
14	07/02/14	Paul brought a DVD
15	10/02/14	Tree Fu Tum on cbeebies
16	10/02/2014	Playing games on cbeebies
17	14/02/14	Play games on cbeebies
18	14/02/2014	Colin listening to music and playing games at the computer
19	14/02/14	Playing games on cbeebies
20	21/02/14	Games on cbeebies
21	21/02/14	Playing games on cbeebies
23	21/02/14	Watching princesses
24	21/02/14	Grand pa in my pocket
25	21/02/14	Games on cbeebies
26	22/02/14	Cbeebies
27	24/02/2014	Playing games
28	28/02/14	Playing games on cbeebies
29	11/03/2014	Playing games on cbeebies
30	10/03/2014	Watching time
31	17/03/2014	Free play at the computer
32	04/04/2015	Papa pig and free play time

33	08/04/2014	Brad and Colin playing games in free time
34	22/04/2014	Watching Octunuts
35	28/04/2014	Watching time

5.2 Observations at W Setting

Number	Date	Context
1	03/05/2013	Circle time
2	03/05/2013	Deforming a radio
3	05/05/2013	Free play at the computer
4	10/05/2013	Making laptops
5	12/05/2013	Gloria playing with the Bee-bot
6	13/05/2013	Free play at the computer
7	13/05/2013	Bee-Bot Molly and Gloria
8	14/05/2013	Request to go on the computer
9	14/05/2013	Playing games on cbeebies
10	16/05/2013	Bee-Bot
11	22/05/2013	Free pretend play
12	28/05/2013	Playing games on cbeebies
13	28/05/2013	Making baby pictures
14	30/05/2013	Computer games
15	30/05/2013	Children playing at the computer
16	31/05/2013	Yang at the computer
17	20/06/2013	Integrating the computer into their play
18	25/06/2013	Pretend play and playing at the computer
19	01/07/2013	Story time
20	05/07/2013	Computer activity
21	08/07/2013	Activity at the computer
22	09/07/2013	Watching and playing games
23	09/07/2013	IWB drawing
24	11/07/2013	Pretend play: Zoo activity
25	12/07/2013	Waiting to play
26	12/07/2013	Computer activity
27	13/07/2013	Watching IWB
28	15/07/2013	Bee-Bot
29	15/07/2013	Pretend play
30	15/07/2013	Computer activity
31	19/07/2013	Playing games on the computer
32	19/07/2013	Watching and playing games
33	20/07/2013	Computer activity
34	23/07/2013	Whole class watching

35	25/07/2013	Computer activity
36	29/07/2013	Playing at the computer
37	30/07/2013	Fish game on the IWB
38	31/07/2013	Activity at the CD player
39	07/08/2013	Bee-Bot
40	08/08/2013	IT engineer fixing the computer
41	16/08/2013	Children at the CD player
42	29/08/2013	Story

APPENDIX 6: FIELD NOTES

6.1 Field Notes at B Setting

Number	Date	Context
1	01/11/2013	Circle time
2	02/11/2013	Children inviting me to play
3	04/11/2013	Reading a story to a child
4	05/011/2013	Playground activities
5	06/11/2013	Setting up the tables
6	18/11/2013	Songs
7	02/12/2013	Games at the computer
8	03/12/2013	Cinderella song
9	15/12/2013	Christmas dinner
10	07/01/2014	Joining children in Sport games
11	08/01/2014	'I know your name'
12	14/01/2014	Children asked me to read a story
13	15/01/2014	Playing games
14	20/01/2014	Children using my notebook
15	22/02/2014	Girls playing together
16	23/01/2014	Dance
17	29/01/2014	Pretend play
18	30/01/2014	Children at the computer
19	02/02/2014	Play invitation
20	01/02/2014	A child talking about activity
21	17/02/2014	A children talking about his toys
22	07/03/2013	Helping children dress up
23	20/03/2014	Quite time

6.2 Field Notes at S Setting

Number	Date	Context
1	11/03/2014	Playing games on cbeebies
2	11/12/2013	Playing games on cbeebies
3	26/11/2013	Circle time
4	21/02/2014	Playing games on cbeebies
5	21/02/2014	Watching princesses
6	22/02/2014	Cbeebies
7	21/02/2014	Grand pa in my pocket
8	21/02/2014	Games on cbeebies
9	21/02/2014	Games on cbeebies
10	18/12/2013	Watching time
11	16/12/2013	Watching time
12	14/02/2014	Playing games on cbeebies
13	14/02/2014	Play games on cbeebies
14	13/12/2013	Playing games on cbeebies
15	13/12/2013	Ugly Duckling on the iPad
16	12/12/2013	Watching time
17	12/12/2013	Mr Tumble
18	11/12/2013	Watching time
19	10/02/2014	watching Tree Fu Tum
20	07/02/2014	Paul brought a DVD
21	04/02/2014	watching Papa Pig
22	10/02/2014	Playing games on cbeebies
23	07/11/2013	Watching time
24	15/02/2014	Colin listening to music on the computer
25	12/03/2014	Invitation to play: ‘let’s play’

6.3 Field Notes at W Setting

Number	Date	Context
1	06/08/2013	Invitation to play
2	06/07/2013	Pretend play
3	08/08/2013	Fixing the computer
4	01/07/2013	Trip to a Castle
5	10/06/2013	Trip to Tennis Court
6	12/07/2013	Story: 'The beauty contest at the zoo'
7	13/07/2013	Watching
8	01/07/2013	Children watching their photos at the IWB
9	10/06/2013	Bee-Bot
10	12/07/2013	Song on the IWB
11	13/08/2013	Playing at the computer
12	14/06/2013	Invitation to play outside
13	15/07/2013	Child laptop
14	16/05/2013	Bee-Bot
15	16/07/2013	Playing at the computer
16	17/05/2013	Observing children's play at the computer
17	18/07/2013	Activity at the computer
18	02/07/2013	Playing games
19	19/07/2013	Watching and playing games
20	20/05/2013	Pretend party
21	22/07/2013	activity at the computer
22	22/05/2013	activity at the computer
23	23/07/2013	pretend play
24	25/07/2013	Forest school
25	26/06/2013	Dinner Time
26	27/06/2013	Pretend play: Peter Rabbit
27	29/07/2013	Yang at the computer
28	29/05/2013	Children playing at the computer
29	31/05/2013	CD player
30	03/07/2013	Pretend play outside
31	30/05/2013	Cd player
32	30/07/2013	Bee-bot
33	31/07/2013	Computer activity

34	04/07/2013	Bee-bot
35	05/08/2013	Playing outside
36	05/07/2013	Circle Time
37	05/08/2013	Chen brought a DVD
38	14/05/2013	Observation
39	13/05/2013	Activity at the CD player
40	14/08/2013	Pretend play
41	13/07/2013	Play outside
43	22/05/2013	Birthday cake
44	14/06/2013	Ginger Bread Man story
45	13/05/2013	Bee-bot
46	01/07/2013	Discussion with a practitioner
47	09/08/2013	Nursery rules
48	13/08/2013	Children at the computer
49	14/08/2013	Baby pictures
50	15/08/2013	Pretend shop
52	10/05/2013	Drawing on the IWB
53	14/05/2013	Children making PC
54	24/05/2013	Yang talking about his laptop
55	08/05/2013	Dancing
56	04/05/2013	Visiting sports centre with children
57	02/05/2013	Play at the computer
85	20/06/2013	Listening to music at the computer

APPENDIX 7: AN EXAMPLE OF OBSERVATION

Kate was choosing a game from cbeebies website

Gloria: no, no. no there, it is there. Do not,

Kate: [could not choose the game that she preferred herself so she asked for help] I want this one [pointing with her finger at the game on the screen]

Gloria: ok let me [put her right hand on the mouse and chose a game for her] no you have to press that one [then Kate continued playing]

Karen: a red

Gloria: the green one [Kate colouring]

Gloria: let us do the spray? [Kate did not answer] let us do the spray? [pause] let, let me help you? [she put her hand on the mouse]

Kate: I can do it!!

Gloria: I just want to [inaudible]

Kate: I want to do this one

Gloria: well, you have to get to do it? Remember, you do [inaudible] when you are there [then she started singing]

Kate: now I want to [pause]

Gloria: squares, squares, squares ….. [singing] let me help you do it [singing] let me help you do it. Squares, squares, squares [Kate moved the mouse and did not seem to be able to get it to do what she wanted] let me help you do it, let me help you do it [singing] let me help you draaaaw [Kate started to touch the screen with her finger and so did Karen, assuming the screen of the computer works like the WB] no, no , no let me help you do it, no I have to press that button [she pressed the ESC button], You just have to press

Kate: [addressing Gloria] how can I do it?

Gloria: the escape button [she started to vegetate and looked at the other children who were playing in the story corner]

Kate: haa haa haaa [laughing]

Gloria: [she looked back at the computer activity] what are you doing?

Kate: ha haaa Aha [Lydia came to the computing activity, then Simon came too]

Gloria: come on [holds Simon's and Lydia's hands] come on?

Lydia: where?

Gloria: come on baby? [They left the computing activity to play in the kitchen corner]

Kate: [asking for help] Karen, Karen [but Karen was observing what children were playing in the kitchen and story corners] Karen, Karen [Kate tapped on her shoulder] how to print this house? Karen, how can you print this house? [Karen had a look at the screen and seemed to be thinking but she did not say anything]

Kate: [stood up, had a look around the classroom] Claudia, Claudia

Claudia: what is the matter?

Kate: I cannot print this one?

Claudia: ok. Hold on!

Kate: Karen, I do not know how to do it!!

Karen: [pause] this one [pointed with her finger at the screen]

Simon and Tina came to the computer activity. Later on Dale, Ali and Lydia joined in]

Karen: [looked around] not many people, not this many. You have to go away

Lydia: after your turn, can I have a turn?

Karen: [wish a frown face] no, no

Simon: and I can I do it?

Karen: when this finished, when this's finished, it's my turn

Lydia: well, after your turn can I have a go? [Kate choose something to watch]

Claudia: [the sound was loud] turn the computer down please? [the children continued to watch but the sound went off suddenly]

Simon: [trying to solve the matter] that one the arrow

Dale: that one

Simon: yes [24/07/2013 W setting]

APPENDIX 8: AN EXAMPLE OF CONVERSATION WITH CHILDREN

Figure 18: Alice playing at the computer with her friends

Hani: ok Alice you have got a smiley face,

Alice: and Lydia too

Hani: is it because you feel happy while playing on the computer?

Alice: yes

Hani: how can we make playing on the computer and IWB more fun Alice here in the nursery?

Alice: make them bigger and then sits.. the sits that have two sides so two people can play and then they could laugh at each other if they play a funny game

Hani: when would your friends be mean while playing on the computer?

Alice: they will be mean if they .. erm.. keep saying 'when is it my turn?' and I keep saying 'just one minute to go'. I keep .. I have to keep saying that every time I play on the computer

Hani: oh that is annoying, is not it?

Alice: nodding her head

Hani: ok so how do you think children should go on the computer?

Alice: in turns every two

Hani: so two children should go at it

Alice: no, I mean they sit next to each other

Hani: so one's watching and one's playing, is it right?

Alice: yah

Hani: these two children should be any tow or friends?

Alice: friends

Hani: why do you think these two should be friends?

Alice: because they won't fight while sitting on the chair waiting for their turn

(27/07/2013 W setting)

APPENDIX 9: LIST OF CODES

List of Codes
play
My turn
Share
Help
Fun
Happy
Like
Sad
Annoy
Boring
Choice
I can do it
Friend
Work
Favorite
Funny
Girly
Babyish
Want a go
Very long time
Waiting
Touch
Alone
Upset
All of us
Show you
Noisy
Up to you
Watch
Finish
Last go
Let
Can’t do it
Fight
Scary
Wrong

Myself
Only us
Not playing
Boyish
Quiet
Peace
Lonely
Nice
Go away

APPENDIX 10: THEMES AND SUB-THEMES IN NVIVO 10 PROGRAMME